NOVEMBER | 1956

products finishing

FINISHES ON METAL PRODUCTS

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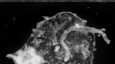

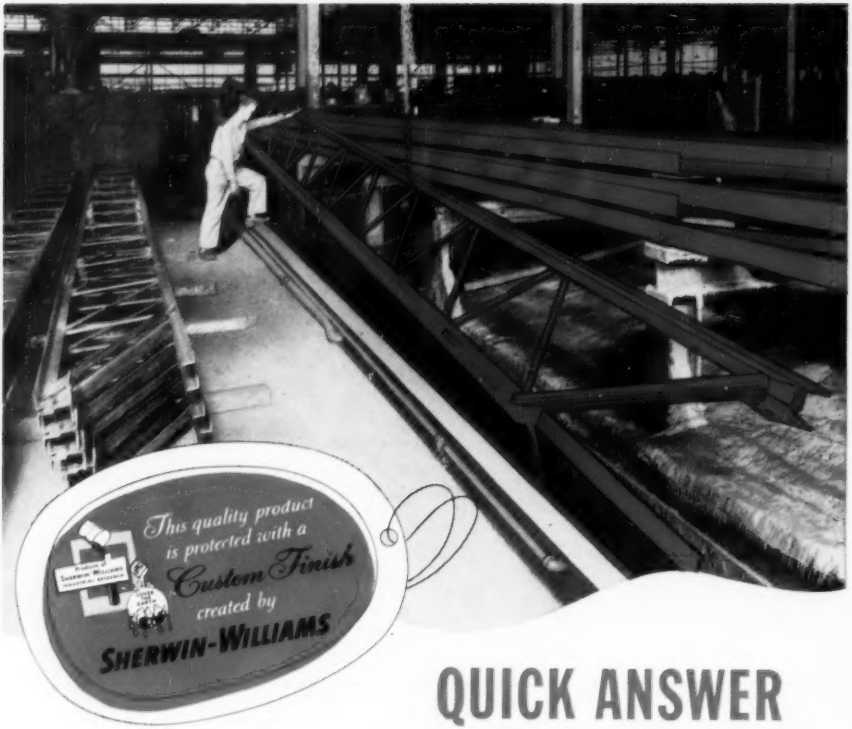

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to lengthy painting problems

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12	26	40	54	68	82	96	110	124	138	152	166	179	192	205	218	231	244	257	270
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That's the report from a leading pump manufacturer — when the new Norton bonded, triangular-shaped abrasive, gave results like these:

100% increase in barrel payload and 80% reduction in tumbling time. A sandblast operation eliminated and hand deburring reduced about 75%.

The uniform triangular shape and size of Tumblex "T" abrasive prevents wedging in recesses . . . Made of famous bonded ALUNDUM* abrasive, it cuts fast, with no cutting compound needed . . . It provides maximum surface contact with parts being processed, for shorter cycles and larger payloads . . . It wears evenly, and when worn down can be used on parts requiring a smaller abrasive . . . Its lightness means less weight required to fill the barrel.

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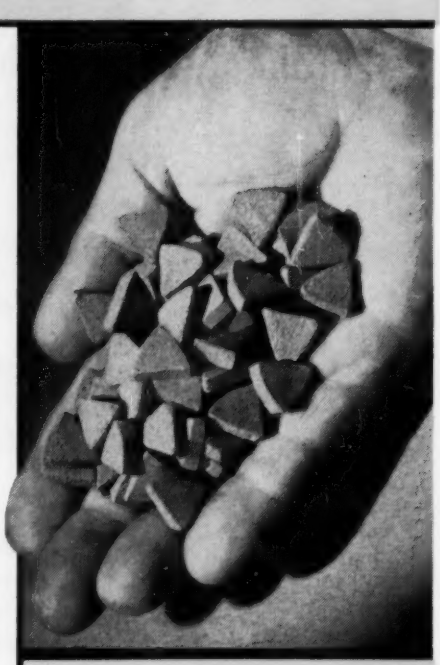

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Making better products... to make your products better

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New---from H-VW-M

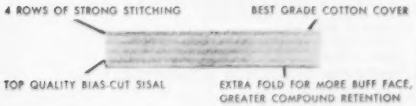
Sisal-Flex and Tufta-Flex Contour Buffs

For fast, heavy-duty cutting on hard metal having contoured surfaces, choose flexible, strong, long-wearing new SISAL-FLEX Buffs! Overlapped SISAL-FLEX construction means cool running, no streaking, unusual pliancy. Check these features:

- **Best grade sisal is bias cut, then bound in top grade bias-cut cotton cloth . . . never frays, never scratches!**
- **Each buffing pad has *extra* fold . . . gives more buffing face, carries more compound on circumference and leading edges.**
- **Ventilated steel center, in 5", 7" and 9" dia. sizes. Note extra row of stitching around center.**
- ***Four rows of stitching, for strength, longer wear.***
- **Also available with triple sewn buffing pads. Both types come in standard sizes from 12 to 18 inches in diameter.**

For fast, lighter cutting on contoured work where the final finish must be smoother, choose strong, unusually flexible, long-wearing new TUFTA-FLEX Buffs! Overlapped TUFTA-FLEX construction means no streaking, positive cutting, cool operation. Look for these special features:

- **Each buff pad made of strong 86/93 cotton—bias cut to prevent fraying, increase wear.**
- **Two rows of stitching—super flexible! Extra row of stitching around center.**
- **Double fold provides greater cutting face, extra compound-holding capacity.**
- **Ventilated steel center has rugged clamping teeth for safety.**
- **Available in standard sizes from 12 to 18 inches in diameter.**


4 ROWS OF STRONG STITCHING
BEST GRADE COTTON COVER
TOP QUALITY BIAS-CUT SISAL
EXTRA FOLD FOR MORE BUFF FACE, GREATER COMPOUND RETENTION

EXTRA FOLD MEANS GREATER BUFF FACE, GREATER COMPOUND RETENTION
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BEST GRADE BIAS-CUT COTTON CLOTH
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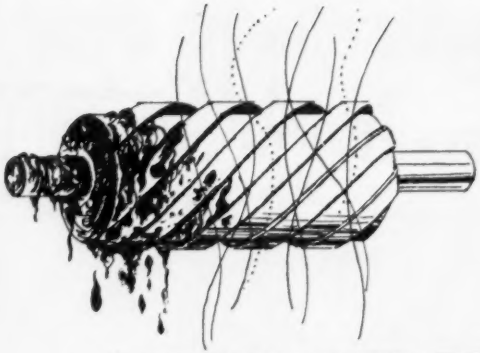

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products finishing

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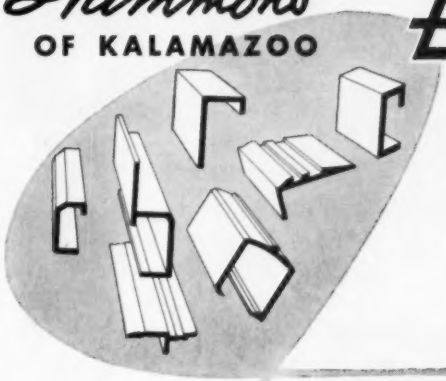

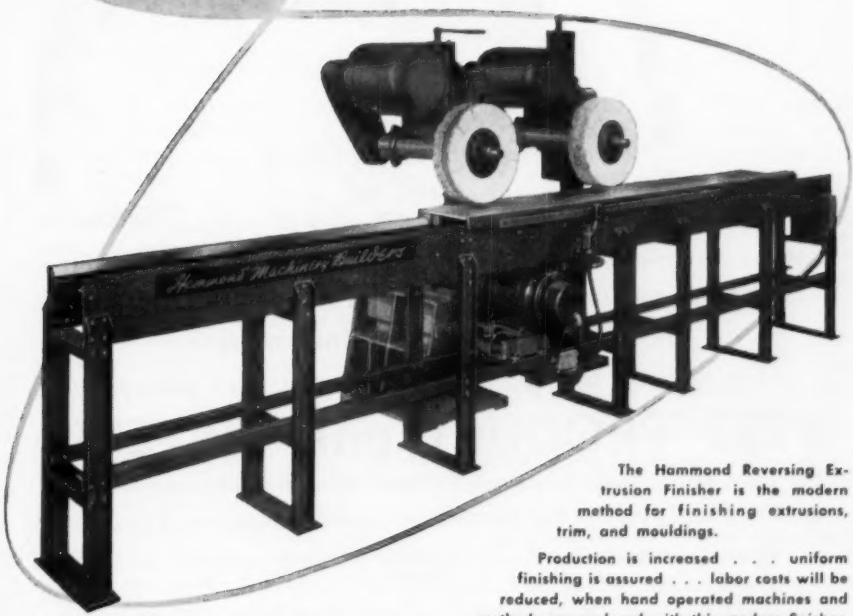

Two-Head Machine shown . . . any number of heads, and length of conveyor, can be supplied to suit your job.

The Hammond Reversing Extrusion Finisher is the modern method for finishing extrusions, trim, and mouldings.

Production is increased . . . uniform finishing is assured . . . labor costs will be reduced, when hand operated machines and methods are replaced with this modern finisher.

SEND SAMPLES and we will show you how much you can speed up production and cut costs.

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Your ENGINEERS
and our
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Let them team up and work together to prevent waste of time and motion, and to effect proper Metal Treating before Painting

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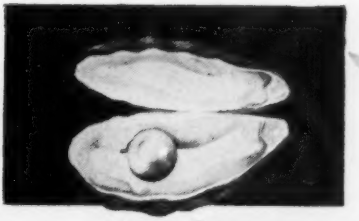

How to add the beauty of PEARL to your finish with NACROMER®

It's easy! Simply by adding a small amount of Nacromer to your regular coating material*, you add a beautiful pearl-like lustre to your finish. The range of effects that can be achieved by also adding transparent pigments or dyes is amazing. For example, it is being used to get beautiful gun metal, gold and silver finishes. It transforms the character of standard colors to achieve unique effects. Nacromer will make a finish that will enhance the beauty of your product . . . increase its sales-appeal!

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Nacromer is versatile, too! You can use Nacromer on practically any material – wood, metal, plastic, leather, and paper are just a few. Nacromer is permanent and safe!

If eye-appeal plays an important role in the sale of your product, you can benefit from the distinctive, different kind of pearl-like finish Nacromer gives. A demonstration sample will show you the difference Nacromer makes on the same kind of material you use – just mail the coupon to get your sample.

**Nacromer is not suitable for use in pigmented enamels, high temperature bake-type synthetic resins containing formaldehyde, or paints. It is suitable for use over these coatings in a clear enamel or lacquer.*

the Mearl corporation

"World's Largest Producers of Pearl Essence"

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Please send a demonstration sample of a Nacromer finish on

☐ wood ☐ metal ☐ plastic ☐ other

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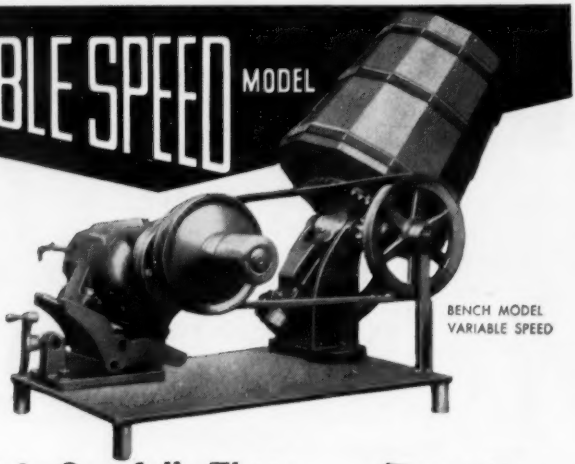
INVESTIGATE THIS TIME-SAVING

VARIABLE SPEED MODEL



BENCH MODEL
VARIABLE SPEED

Bench-Type Single Speed

No. 5—Single Speed

No. 5—Variable Speed

Note Carefully These IMPORTANT POINTS

Barrels can be filled with parts or abrasive—*while running.*

Work can be watched — samples removed for inspection — *while running.*

Angle can be changed for best abrasive or polishing action — *while running.*

Barrels can be emptied by tilting to pouring position — *while running.*

Barrels are made in various sizes, shapes, and materials. They are easily replaced.

No. 5A—Single Speed

No. 5A—Variable Speed

No. 6—Single Speed

If You're a Tumbler, Send for This NEW CATALOG

No. 6—Variable Speed

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"The Tumbling Barrel People"

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SINCE 1880 DESIGNERS AND BUILDERS OF TUMBLING BARREL EQUIPMENT

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MICCROSOL SPRAY S-2003 IS READY . . . to show YOU the way to profitable spray jobs

You can apply S-2003 with conventional spray equipment.

You can apply 60 mils thickness in one application without sagging of material. If multiple coats are required, a short cure time is all that's needed between applications. A contrasting color can serve for layer identification, if desired.

You can use S-2003 in all plating baths. It has the same toughness—chemical, corrosion, and abrasion resistance as Miccrosol E-1003. Our adhesive systems provide outstanding adhesion to metal surfaces.

Tanks
Ducts
and other
Equipment

Solvent additives are not necessary. S-2003 is 100% solids and is sprayed as received. Time consuming and expensive adjustments are unnecessary. Problems of material instability and film cracking are eliminated. There is no solvent loss and less operator fatigue with Miccrosol Spray S-2003.

It's the ideal plastisol for spray applications.

IT'S TOPS!

• WRITE FOR PARTICULARS ON COMPANY LETTERHEAD

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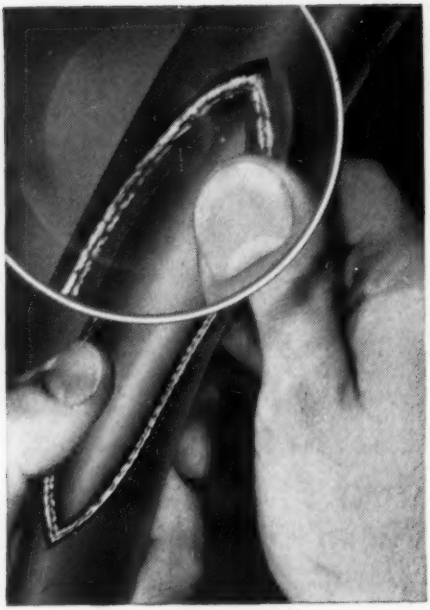


DeVilbiss-resists

DeVILBISS PAINT HOSE

DeVilbiss synthetic-compound liner lasts indefinitely, because it is specially formulated to withstand all solvents.

ORDINARY PAINT HOSE

Ordinary hose, with rubber-composition liner, soon deteriorates from active solvents present in all paint materials.

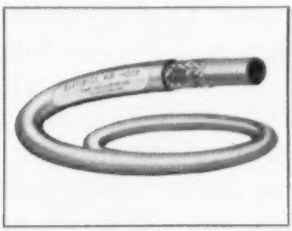
made paint hose solvent action longer

"Torture" tests, the most conclusive known for solvent-hose analysis, prove the superiority of DeVilbiss hose.

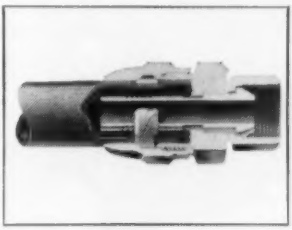
Fluid liners from DeVilbiss and other brands of paint hose, when exposed to the prolonged solvent action of common paint thinners, tell the story. The DeVilbiss liner shows no sign of deterioration, while others show marked changes from the effects of turpentine, acetones, ketones, acetates, toluol and other hydrocarbons – proof that DeVilbiss hose outlasts other makes in operations where paints are conveyed.

This laboratory evidence is your assurance of longer protection against hose-liner disintegration, swelling, and plugging – against paint contamination and discoloration!

Next time you order, specify DeVilbiss-made hose. Not only does it resist solvent action better, but also, it is manufactured to closer dimensional tolerances . . . and is produced in a specialized DeVilbiss Rubber Plant, where the requirements of quality hose for spray painting have been a scientific study for over 40 years.



DeVilbiss' new oil-resistant air hose is specially compounded for long-lasting service with air tools that require lubrication through the air stream.



DeVilbiss hose connections fit all common sizes of all types of air and fluid hose; provide a smooth, tight-grip, leakproof connection; are reusable.

THE DEVILBISS COMPANY

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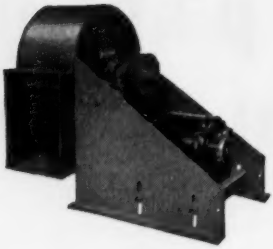
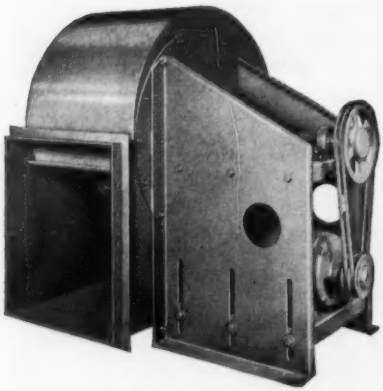


Nos. 76 and 91 Belted Junior Fan

GENERAL PURPOSE FANS

Recommended for their ease of installation, low maintenance cost and space saving features



Portable, self-contained units of medium capacities for low pressure industrial and ventilating applications. Designed particularly for use with duct systems.

General Purpose Fans are made in three types and eight basic sizes with capacities from 1200 to 19,000 cfm. (Junior fans in five sizes from 160 to 4100 cfm). These include both direct connected and belt driven models.

nyb products have 65 years of manufacturing experience and engineering knowledge built into them. All ***nyb*** products are laboratory tested, accurately rated and fully guaranteed in strict accordance with standard test codes.

Write for Bulletin 563

nyb **THE NEW YORK BLOWER COMPANY**

SALES OFFICES • 32nd STREET and SHIELDS AVENUE • CHICAGO 16

FACTORY, LAPORTE, INDIANA

For more data circle 152 on Reader Service Card

PROMAT DOES IT AGAIN !!

New D-37 gives you a one-dip, bright chromate for less than 6¢ a gallon!

USED IN SEMI OR FULL AUTOMATICS — BARREL OR RACK PLATING

IT'S A POWDER!
D-37 Chromate is a concentrated powder that you mix yourself. You don't pay freight on water.

NO LEACHING NECESSARY!
This power-packed concentrate of acid and chromate is a one-dip brightener. No other single dip chromate lays down as much chrome. The laying of chrome is in direct proportion to the time of immersion!

COSTS PENNIES A GALLON!
With D-37 you have no carboy inventory . . . nothing to hold or return. The cost of this new amazing chromate made up is but pennies a gallon.

MANUFACTURING PLANTS LOCATED IN THE CITIES BELOW

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PROMAT A DIVISION OF **POOR & CO.**

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DISTRIBUTORS OF PROMAT'S GREAT LINE OF PROTECTIVE MATERIALS

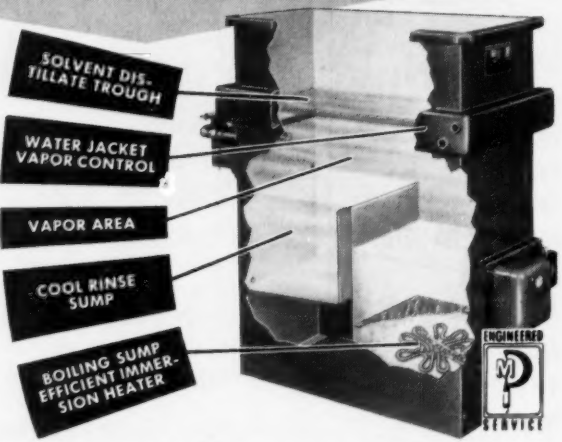
Baker Dist., Cleveland; Crown Rheostat, Chicago; Haviland Co., Grand Rapids, Mich.; Leco Engineering & Sales, Los Angeles; LaSalCo., St. Louis; Munning & Munning, New York and Newark; The Reynolds Co., Philadelphia; F. H. Ross Co., Charlotte, N. C.; John Swift & Co., Canton, Conn.; Sundmark Co., Los Angeles; Gus Walgren Co., Grand Rapids, Mich.; Bill Young & Co., Cincinnati.

"PROMAT MEANS PROTECTIVE MATERIALS"

For more data circle 153 on Reader Service Card

This compact, versatile degreaser proves ideal for efficient, economical production in smaller plants or departments

Now any plant can have production vapor degreasing



FOR LESS THAN $400.00

This vapor degreasing economy may be just what you're looking for. With such a low original investment it is possible for every plant to have vapor degreasing—the *modern* metal cleaning method.

The 100 CS is a *complete* degreaser. You get cool and hot rinse, along with vapor degreasing. In addition, the 100 CS also operates as a solvent recovery still at seven gallons per hour. (This rate is based on a 30% contamination of solvent).

The Phillips 100 CS operates economically on either a *continuous or intermittent basis, handling many production or maintenance jobs quickly and inexpensively.* Check into this low cost unit today.

SEND FOR COMPLETE TECHNICAL DATA

All essential information on 100 CS specifications and electrical characteristics.

ASK FOR DETAILS ON OUR NEW LEASE-PLAN FOR VAPOR DEGREASERS

Phillips *MANUFACTURING COMPANY*
3457 West Touhy Avenue
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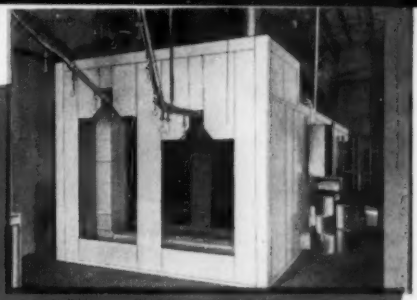
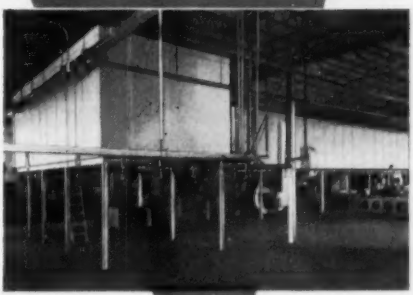
STANDARD and HEAVY DUTY ELECTRIC, STEAM, and GAS, VAPOR DEGREASERS
POWER AND SURGE WASHERS • SPECIAL CLEANING EQUIPMENT

For more data circle **154** on Reader Service Card

BURDETT'S "Famous Name" of the month is "Magic Aire"





Have you noticed how month after month, one "famous name" company after another have chosen the Burdett "Radiant Heat" Finishing System?

There's a good reason for it!

In the case of Magic Aire Division, United Electric Co., of Wichita Falls, Texas, manufacturers of evaporative coolers, floor space is saved, uniformity and quality of finish is improved, production increased and cost of operation is reduced.

Magic Aire Products are cleaned, bonderized, dried-off, spray painted and thoroughly baked.

System consists of:

- Five-stage cleaning and bonderizing unit
- Two-pass dry-off oven
- Two-pass paint drying oven
- Conveyor speed is 9 ft. per min.
- Operates at 350° F.—15 min. cycle

Whether a single batch type oven or a complete Conveyorized System . . . modernization of old equipment or a complete new finishing system . . . either "Radiant Heat" or convection . . you can profit much by employing the heat processing "know-how" of Burdett engineers to give you the most efficient and economical system for your particular operation.

Be sure it's Burdett— "Radiant" or "Convection"

Write for the Burdett Story!

BURDETT MANUFACTURING COMPANY

4916 South Monitor Avenue • Chicago 38, Illinois

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Manufacturers of

COMPLETE FINISHING SYSTEMS — "RADIANT-HEAT SYSTEMS", OVENS, HEATERS, AIR MAKE-UP UNITS, SPRAY BOOTHS AND WASHERS

For more data circle 155 on Reader Service Card

3 STANDARD SHAPES

"RECTANGULAR"

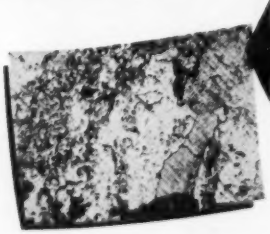
"TEAR DROP"

"DOG BONE"

NEW!

SHAPED, EXTRUDED APW SILVER ANODES

CONTROLLED GRAIN SIZE: APW EXTRUSION PROCESS* controls grain size within definite limits—minimizes sheddings



ROLLED FLAT PLATE ANODE SECTION. Photomicrograph illustrates highly irregular, uncontrolled grain size—a major cause of shedding and rough electrodeposits.

*Pat. Pending

APW EXTRUDED ANODE SECTION: Note small, fully controlled regularity of grain size to promote uniform corrosion, smoothest electrodeposits and less rejects.

The three standard shapes of APW Extruded Anodes were developed to extend the useful life of anodes—*to lower plating costs!*

Through scientific design, the distribution of mass material helps to maintain a more efficient ratio between anode weight and active surface area. After 85% by weight has been plated off, this APW anode *retains 80% of its original active surface area!* You profit three ways with longer anode life, minimized polarization and less silver scrap to be refined.

Another equally important advantage of the new APW Extruded Anode is the small, uniform grain size—*controlled between definite ideal limits!* As a result, corrosion is smooth and uniform for consistently smooth electrodeposits. Shedding is virtually eliminated—rejects are a comparative rarity!

To be certain the silver you buy in anodes is used most efficiently, APW will develop special anode shapes to meet particular plating bath conditions. We'll be glad to assist with your anode problems.

THE AMERICAN PLATINUM WORKS

231 NEW JERSEY RAILROAD AVENUE • NEWARK 5, NEW JERSEY

APW

ENGELHARD INDUSTRIES

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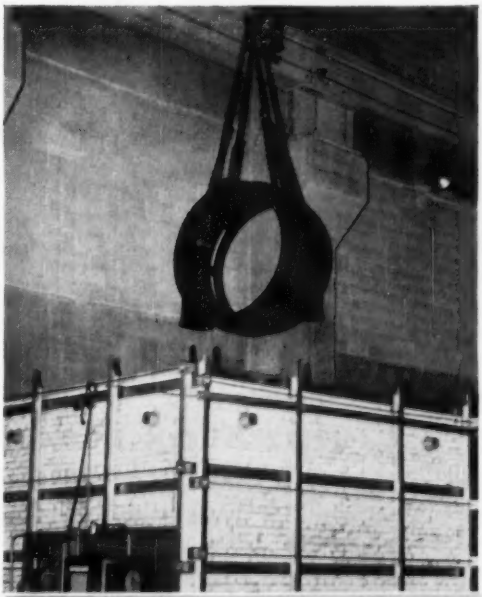
Hot Time...

assures you a long-time trouble-free source of low-voltage dc power

Chandeysson

NORMALIZES COLD-ROLLED FRAMES AND WELDS BY SPECIAL ANNEALING



This massive Chandeysson generator frame is being lowered into a specially designed furnace for heat treating. This annealing stress-relieves the cold-rolled steel frame and all welds. Superior and uniform electrical characteristics result in sparkless commutation, lower brush wear, and higher efficiency . . . even after years of rugged use. The most modern manufacturing methods are used in every step of making a Chandeysson Motor Generator. Unified responsibility for the manufacture of every component . . . from selected raw materials to the finished product . . . is in the hands of skilled men with decades of experience in building low-voltage generators. Our aim in engineering is to *prevent* design defects . . . rather than to correct for them. This is why more and more "Industry Leaders Choose Chandeysson!"

MAKE US PROVE to you that a Chandeysson Motor Generator set is your most economical and dependable source of low-voltage dc current. Mail this coupon today.

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Please send bulletin D-101

Name.....Title.....
Company.....
Address.....
City.....Zone....State.....

CHANDEYSSON ELECTRIC COMPANY • **4082 Bingham Avenue, St. Louis 16, Mo.**

For more data circle 157 on Reader Service Card

METARAY® ELEMENTS

Any infrared reflector bank can be equipped with glassless, glareless, self cleaning Metaray elements. Radiation is uniformly spread in a figure 8 pattern.

Ask for Bulletin L-1104-A

MODULAR RADIANT PANELS

A high-intensity, accelerating heat source. Four standard, modular panels completely factory assembled with built-in continuous bus, reflector, insulation, frame and mounting. Lets you tailor heat source exactly to process requirements.

Ask for Bulletin CS-606

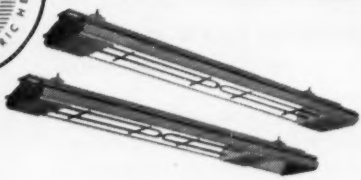
CHROMALOX

FIRST NAME IN ELECTRIC HEAT

RADIANT HEATERS

For assembly in banks. Two bolts to hold it; two wires to connect it. Six standard lengths, 14 standard wattages. Housing is rigid extruded aluminum with brightly polished parabolic non-oxidizing reflector.

Ask for Bulletin CS-604



ADJUSTABLE AREA RADIANT HEATERS

The new Chromalox URAD lets you match heat source to the work area. Choose one basic housing for your largest work. Into the housing you install any of 6 different heated lengths to fit various work sizes.

Ask for Bulletin CS-607

CHROMALOX ELECTRIC HEATERS

give you better finishing results

When you install Chromalox electric heating equipment, you get better process control, fewer rejects, lower operating costs. That's because Chromalox electric heaters have been developed to meet the exacting standards of the finishing industry.

No matter how specialized your heating problem, there is a Chromalox heater designed especially for the job. Call your Chromalox Direct Factory Engineer for helpful assistance on your heating problems.

IMMERSION HEATERS

Portable and tank types for electroplating, cleaning and pickling. Available in a variety of sheath metals for the best service in corrosive as well as non-corrosive solutions. Complete range of controls and accessories.

Ask for Bulletin 750

B-705

Edwin L. Wiegand Company

7522 Thomas Boulevard, Pittsburgh 8, Pa.

For more data circle 158 on Reader Service Card

Has 2 ball bearings for medium duty Buffing and Polishing with motor from 2 to 5 H.P. Affords utmost freedom of operation for handling of large and awkwardly shaped parts.

Has 4 ball bearings for heavy duty production work with motor from 3 to 10 H.P. Distance between wheels either 45 or 60 inches.

Illustrated above are 2 of the 63 standard types and sizes of "HISEY" Buffing and Polishing Machines. The belt-driven types shown are most popular, however, and can also be furnished in direct-driven types with wheels directly on motor spindle.

GUARANTEED ANNUAL PERFORMANCE

DUST COLLECTORS

This bag-type Dust Collector illustrated above is made in 3 popular sizes. Cyclone-type also available in 3 sizes.

Year in and year out, "HISEY" Buffing and Polishing machines are on the job. This is guaranteed by certain basic design principles embodied in all sizes dictated by the "know-how" accumulated through constant improvement since 1896. Examples are alloy steel spindle, ample size ball bearings adequately lubricated, and sufficient weight scientifically distributed where it will do the most good.

Ask for Catalog 72 FG

Hisey THE HISEY-WOLF MACHINE CO.
CINCINNATI 8, OHIO
Division of The Cincinnati Electrical Tool Co.

For more data circle 159 on Reader Service Card

More Cleaning Per Tank

And you can put a lot of metal work through a cleaning tank charged with

Cowles NS SOAK CLEANER

because Cowles NS Soak Cleaner has *extra soil capacity.*

Cowles NS Soak Cleaner gives you *more emulsifying* action—*more power* to hold loosened soil in suspension long after ordinary soak cleaners have broken down.

No scum on the cleaning tank to foul cleaned metal coming out. Clean it with Cowles NS Soak Cleaner and it stays clean. Your tanks stay clean, too. No sludge build-up.

For tips on *soak tank* cleaning before plating, enameling, other finishing—

Send this coupon for NS Technical Bulletin

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Cowles CHEMICAL COMPANY
Cleveland 3, Ohio

For more data circle **160** on Reader Service Card

Vol. 21, No. 2

NOVEMBER, 1956

. . . . editorial . . . .

How Much is a Clean Plant Worth?

It's worth every cent it costs. Many companies have shown that it's an outstanding bargain.

Some people think that in a neat, clean plant too much money is being spent on cleaning, painting, and general maintenance. The same school of thought holds that in a busy plant there will not be time to keep floors clean, aisles clear, stock in bins or on pallets, walls painted, and lighting fixtures clean.

Owners and managers of clean plants receive definite dividends from money invested in plant cleanliness. One benefit is increased efficiency, because the neat, uncluttered plant operates more smoothly than the confused, disordered shop. Also, the maintenance superintendent will find that it is easier to keep a clean plant running properly. Next, there is a substantial reduction in fire and accident hazards—potential sources of losses which can never be covered adequately by insurance. Another plus value from cleanliness is the pride workers can take in their shop and their company. Better employee relations, that result from more pleasant surroundings, can be expected in a plant where there is pride in appearance.

Parts or products rejected by reason of dust and dirt particles in paint or porcelain enamel finishes are costly. Such rejects can be held to a minimum in a clean plant. Plating rejects can be caused by dust, dirt, oil, or grease in plating tanks. These are even more troublesome, because the real cause of the trouble is not so obvious. Correction of the trouble is time-consuming and expensive.

Public relations is now closely related to product sales. The newer plants are being designed so that visitors—potential customers—can be shown through the plant easily and readily observe manufacturing operations. For example, spray booth enclosures are being designed with clear glass windows, so that visitors can observe finish application. Only a clean, neat plant will leave visitors with the impression that a quality product is being manufactured.

Forward-looking companies wisely mark significant sums of money for programs devoted to improving employee relations, community relations, and public acceptance of the company's products. A clean plant can help accomplish all these objectives.

Ezra A. Blount

—EDITOR

Finishes for Luminaires

Curtis Lighting, Inc., produces aluminum luminaires with specular or diffuse reflecting surfaces. Steel luminaires are finished in white enamel. Combinations of the two fill a wide range of lighting requirements.

By **WILLIAM WEIBEL**
Illuminating Engineer
Curtis Lighting, Inc.
Chicago, Illinois

CURTIS LIGHTING, INC., has been in the business of engineering and manufacturing luminaires for over 50 years. During this period the company has pioneered in many developments in the field, some of which have been designated as "Curtis Firsts." In its development work the company has emphasized the use of reflectors to control and direct light, and the design of luminaires which eliminate glare and uncomfortable seeing conditions.

In the early 30's the company became interested in the commercial development of the Alzak process, patented by the Aluminum Company of America, and became the first lighting equipment company to be licensed under Alzak patents. During the past 20 years Curtis has applied new techniques and standards of design and manufacture to fluorescent lighting. Alzak reflecting surfaces have been successfully applied to fluorescent fixtures.

Curtis Lighting now occupies a plant and office (Fig. 1) containing over 120,000 square feet of space. The plant was recently modernized and expanded to keep pace with the increased demand for both aluminum and steel luminaires. This modernization included the Alzak finishing and paint finishing departments, both of which will be described in this article.

Curtis luminaires are made in a wide variety of designs, materials, and finishes to satisfy modern requirements of comfort in seeing and for pleasing appearance of the completed installation. Aluminum and steel are the chief materials used in fabricating Curtis luminaires. Steel parts are finished in white enamel

Fig. 1—Front view of the modern plant of Curtis Lighting, Incorporated, Chicago, Illinois.

(Fluracite) or other light colors. Aluminum parts are finished by the Alzak process and are available in a mirror (specular) or soft matte (diffuse) finish. Luminaires may be finished entirely in white enamel, or some parts may be formed from aluminum and finished in either the mirror or matte finish or a combination of the two. It is this variety of possible surface finishes that enables Curtis to design luminaires for so many different lighting requirements.

There are many different sizes and styles of luminaires. Some incandescent reflectors are spun from aluminum blanks into a bell shape. Luminaires for fluorescent lamps are generally long and narrow to accommodate the tubular lamps. Maximum length of such luminaires is generally about 10 feet with an 8-foot length specified most frequently.

Manufacturing Process for Aluminum Luminaires

The various elements or parts which are to receive the Alzak finish are formed from a high purity special aluminum alloy called "reflector sheet." The reflector sheet which will be treated to produce a diffuse surface is homogeneous throughout. Sheets that will receive a mirror or specular surface finish are clad on one side with aluminum of even higher purity than the remainder of the high purity alloy.

The metal, usually 0.040 inch thick, is purchased as coil stock or sheet stock and processed through the usual shearing, blanking, punching and forming operations. Circular reflector elements are blanked and then spun on metal spinning lathes. Parts which are to receive a matte finish require no buffing or polishing. For the clad aluminum parts, which will receive the specular finish, a conventional aluminum buffing operation is specified. On some models certain areas are buffed for specular reflection and other areas finished in a matte finish to secure interesting and attractive architectural effects.

Facilities for processing aluminum fixture parts through the two variations of the Alzak process are in a large, well-lighted finishing room. Processing tanks are arranged around three sides of the room so that material flow follows a U-shape. Material enters one door, is taken through the process cycle, and leaves by another door. The center of the room is left free for storage of chemicals and the many types of aluminum racks required in this process.

Tanks are usually 42 inches wide,

". . . an air sander fitted with emery paper is so mounted that the rack contact rests on emery paper and is cleaned and brightened . . ."

9 feet long and 6 feet deep, with a solution depth of 5 to 5½ feet. They are constructed of steel, stainless steel, or lead-lined steel. Process tanks are exhausted efficiently so that objectionable fumes are not present in the finishing room.

Two overhead monorail cranes and power hoists make the movement of the large racks from tank to tank easy. A steel grating walkway erected 3 feet above the floor and along one side of the line of tanks allows the operators to handle racks of parts and operate the necessary controls. Electrical controls, automatic timers and automatic temperature controls ensure that each part will receive a uniform treatment according to specifications.

The construction and repair of racks for the Alzak process is a substantial operation at Curtis. Racks are constructed from pure aluminum bar stock of such a size that the load can be processed through the tanks. No insulation of any type is used on the racks. All parts of each rack are pure aluminum, including nuts, bolts, rivets, spring contacts, and of course, the main structural members.

Alzak Process

Process details for parts to receive

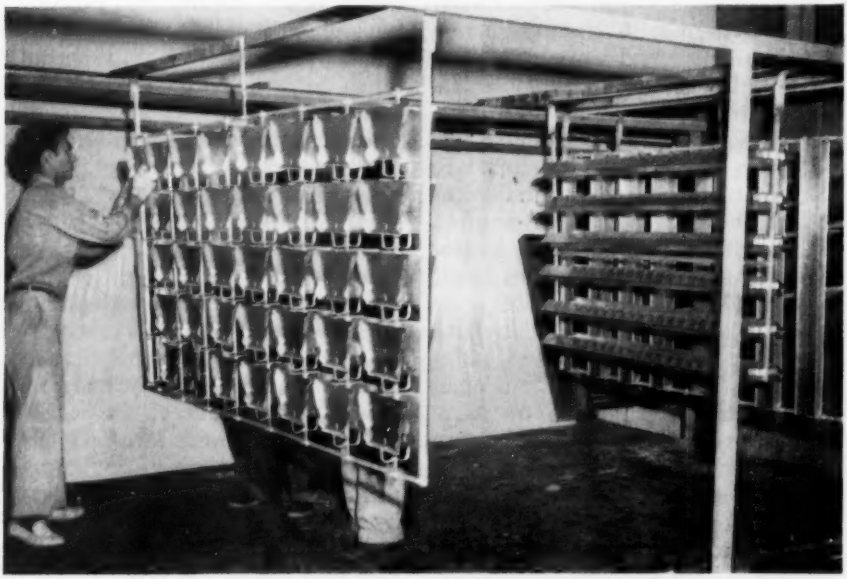


Fig. 2 — Aluminum luminaire elements are shown being loaded on processing racks to receive the Alzak treatment. The racks are constructed from pure aluminum bar stock.

the so-called specular finish, or reflecting finish are as follows:

1. Fasten by spring clips on racking frames, which are designed for the part being processed. (Fig. 2)
2. Vapor degrease in a Detrex degreaser.
3. Clean in Cowles AK cleaner. 6 oz./gal. 160 deg. F. for 2 minutes.
4. Rinse in air-agitated flowing water.
5. Spray rinse in water (at this station an air sander fitted with emery paper is so mounted that the rack contact rests on the emery paper and is cleaned and brightened during the rinsing operation).
6. Electrolytically brighten in a proprietary acid solution. (Fig. 3). Time 12 minutes. Temperature 68 deg. F. (maintained by flowing cold water and automatic temperature control). Copper cathodes are employed. The tank is lead lined and equipped with a synthetic fiber cloth diaphragm on each side of the "work" to prevent bubbles from cooling coils from streaking the parts being processed. Current density, 10-20 a.s.f; 14-35 volts. A spring clamp is used to secure good electrical contact.
7. Water spray rinse.
8. Remove smudge in a phosphoric-chromic acid solution (air

Fig. 3—A load of spun aluminum reflectors has just been removed from the anodic brightening tank. Note spring-loaded current contact clamp in foreground of the photograph.

agitated). Temperature, 185 deg. F. Time, 1 to 2 minutes.

9. Air agitated flowing cold water rinse. (Fig. 4).
10. Anodize in 15 per cent sulfuric acid for 8 minutes. Temperature, 68 to 76 deg. F. Current density, 10 to 12 a.s.f., 15-22 volts. Air agitated. Temperature maintained by cold water and automatic temperature control. The lead-lined tank serves as the cathode.
11. Agitated cold water rinse.
12. Seal for 15 to 22 minutes in neutralized tap water contained in a steel tank with aluminum liner. Temperature, 180 to 185 deg. F.
13. Dry in air.
14. Unrack, inspect, label, and pack. Each part is identified with a distinctive Alzak label citing the patent numbers.

Since a non-conducting anodic coating is formed on the racks during the process, the racks are stripped in a mixture of phosphoric and chromic acids. The stripped surfaces of the rack contacts then provide low-resistance connections for the next processing cycle. Following stripping, the racks proceed through a flowing water rinse and are then held in the rack storage area or returned to the loading area for use in another cycle.

Parts which are to receive the diffuse or matte finish proceed through a somewhat different cycle up to the electrolytic brightening operation. This preliminary cycle is as follows:

1. Rack in spring contact racks.
2. Vapor degrease in Detrex degreaser.

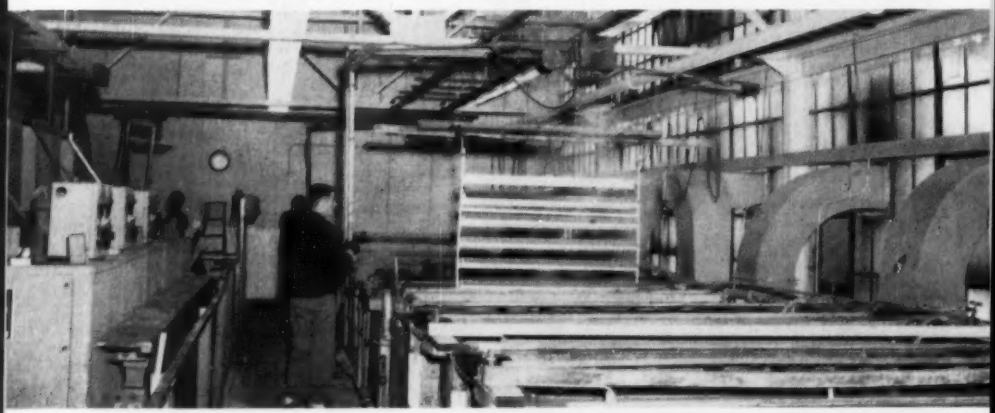


Fig. 4—Overall view of one side of aluminum finishing department, showing line of processing tanks, steel grating walkway, tank exhausts (right of photo), and line of Wagner Brothers 1000-ampere, 25-volt rectifiers (left of photo) which furnish electric power for the electrobrightening and anodizing. Rack of parts shown above is ready for anodizing.

3. Etch for 2 minutes in a solution of Diversey Aluminux held at 178 to 180 deg. F. (Fig. 5).
4. Flowing cold water dip and spray rinse.
5. Air agitated flowing cold water rinse.
6. Dip in cold 1 to 1 nitric acid for 1 to 3 minutes to remove smut. Stainless steel tank. Room temperature.
7. Air agitated flowing water rinse.
8. Water spray rinse.

The process from here on is almost the same as that previously cited, except that the processing times in some of the solutions are different for the diffuse coatings. To secure some uniformity of rack loading and power consumption, racks are loaded so that they will contain about 50-60 square feet of metal surface to be treated.

Two tanks are used for the electrobrightening operation. Life of the solution in these tanks is a matter of a few weeks, after which the solution is dumped and a new solution prepared. During the life of the solution the free acid concentration is maintained at a certain standard. When the aluminum concentration of the solution reaches a limiting value, the solution must be dumped. The newer solution is always used for parts receiving the specular finish. Processing time is 12 minutes. Parts receiving the diffuse finish are treated in the older of the two solutions for 5 minutes.

Time in the anodizing tanks varies according to the specification for the finish. A heavy duty finish is obtained in 15 minutes and consists of an anodic coating of not less than 7.5 mg./sq. in. A regular finish is formed in 8 minutes and has an anodic coating of not less than 5 mg/sq. in. Sealing time for the regular coating is 15 minutes; and for the heavy duty coating, 22 minutes.

Flow Sheet for the Alzak Process

Diffuse Reflectors	*Specular Reflectors*
Fabrication	Fabrication
Racking	Racking
Clean and etch	Clean
Rinse	Rinse
Clean in acid	
Rinse	
Electrolytic brightening	Electrolytic brightening
Rinse	Rinse
Smudge removal	Smudge removal
Rinse	Rinse
Formation of aluminum oxide	Formation of aluminum oxide
Rinse	Rinse
Seal	Seal
Dry and unrack	Dry and unrack

Reflector Characteristics

The Alzak process provides the means of producing reflectors with surfaces ranging from diffuse to specular with high reflectivity and with surface protection suitable for

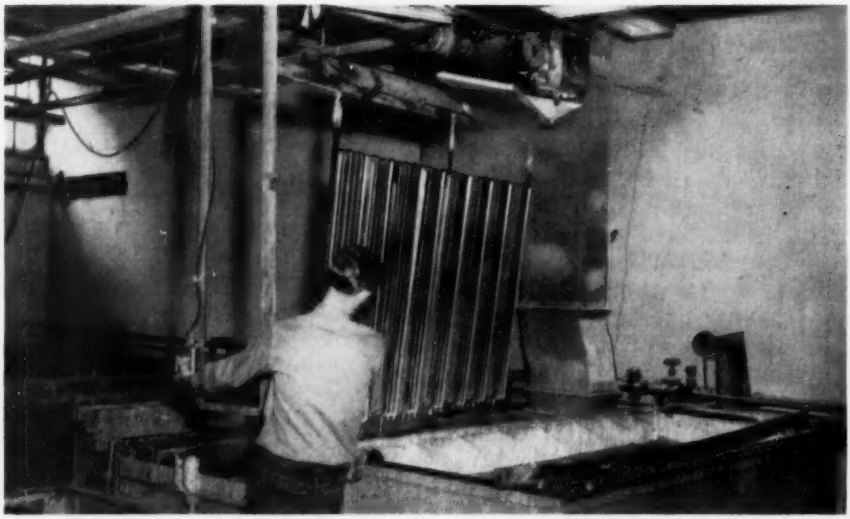


Fig. 5—This rack of reflector elements has just received the etching treatment and will proceed through the process cycle specified to produce the desired diffuse Alzak finish.

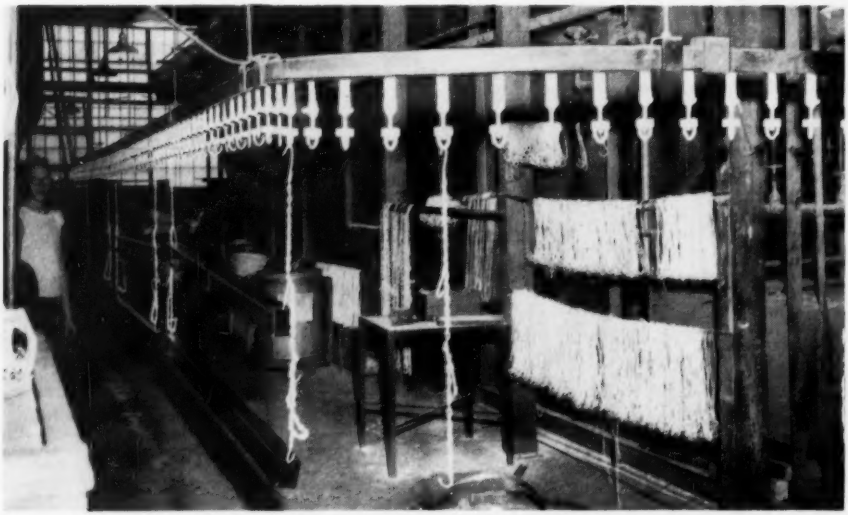


Fig. 6—Loading station for the conveyorized paint finishing installation. Immediately behind the loading station is the Detrex spray and vapor degreaser into which the parts go first for removal of surface soil. The degreaser's entrance and exit are located about 25 feet above the floor level of the plant so as to minimize the amount of solvent vapor loss.

"Reflectors intended for outdoor use with no protective glass cover should have a greater thickness of aluminum oxide."

interior or exterior use. The finish recommended for interior use results in reflection factors in the practical range of 75 to 80 per cent for diffuse surfaces, and 83 to 86 per cent for specular surfaces. Reflectors intended for outdoor use with no protective glass cover should have a greater thickness of aluminum oxide. The reflection factors are in the range of 65 to 70 per cent for diffuse, and 78 to 83 per cent for specular surfaces.

The oxide thickness on reflectors varies from 0.0001 to 0.0003 inch. The 0.0001-inch thickness represents about 5.0 mg./sq. in. aluminum oxide and is recommended for reflectors for indoor use. For outdoor use, a thickness of 0.0003 inch is recommended. The aluminum oxide surface, after being properly sealed, is hard, smooth and resistant to abrasion and corrosion. As a reflector medium, it is highly efficient, permanent and free from discoloration.

Paint Finishing Process

In another part of the Curtis plant is located a large finishing room for the paint finishing of steel reflector parts. In this room a large vapor-spray degreaser, two electrostatic spray booths, two water wash hand spray booths, and an overhead gas-fired, infrared oven are combined

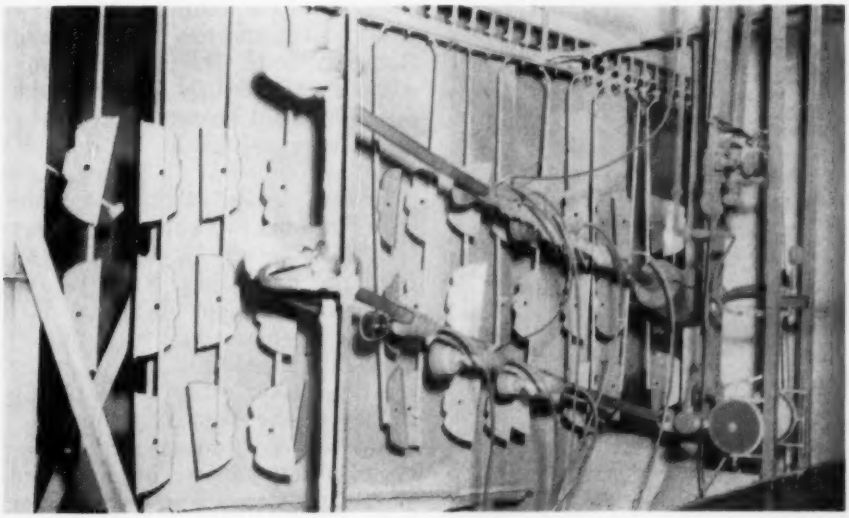


Fig. 7—A view of one side of the double spray booth in which two Ransburg No. 2 spray atomizing units are mounted. Conveyor passes between these units. The Spee-Flo paint heaters used in the setup can be noted in the right foreground of the photograph. They raise the paint temperature to 90 deg. F. Paint is actually applied at about 75 deg. F.

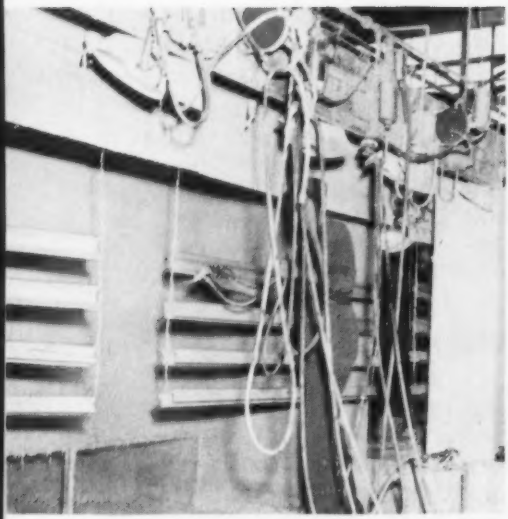


Fig. 8—Final spray touchup finishing is done in two water wash hand spray booths. Here again Spee-Flo paint heaters are connected in the line to heat the paint prior to spraying.

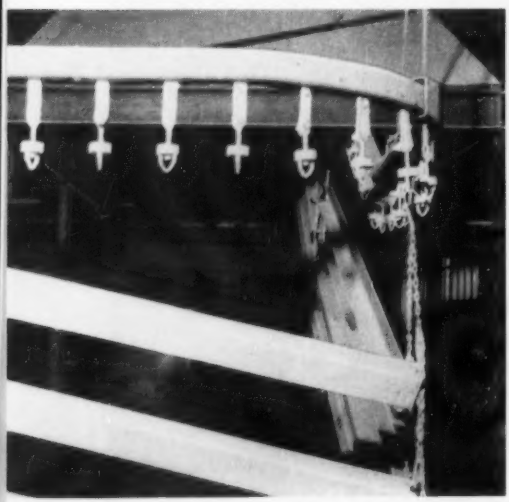


Fig. 9—Painted luminaire parts make a sharp turn on the conveyor and enter the Burdett A-type gas-fired infrared paint baking oven.

into an efficient paint finishing unit by a conveyor 1,250 feet long.

Luminaire parts are fabricated from 0.036-inch-thick cold - rolled steel employing conventional forming and fabricating processes. Following the forming processes, steel parts are conveyed to the paint finishing department and loaded on a Richards-Wilcox Zig-Zag conveyor (Fig. 6) for cleaning and paint finishing. The first step in the process is a cleaning cycle in a Detrex vapor-spray degreaser, through which the conveyor and parts pass.

Parts, still hooked on the conveyor and traveling at a rate of 11 to 15 feet per minute, now pass between two double sets of Ransburg No. 2 electrostatic spray atomizing heads (Fig. 7). A white baking enamel (Fluracite) is applied to each side of the fixture parts as they pass between the two double sets of Ransburg units. The paint is pumped to the Ransburg units through Spee-Flo paint heaters, which raise paint temperature to 90 deg. F. Paint is applied at 75-80 deg. F.

Fixture elements then proceed directly into the two water wash spray booths equipped for hand spray from pressure tanks. Significant surfaces of the elements are touched up to secure more uniform coating on irregular shapes (Fig. 8).

After a short set-up travel on the conveyor, the painted fixture elements proceed into an overhead A-type Burdett gas-fired infrared oven (Fig. 9). There they are baked for 4½ to 5 minutes at 375 to 400 deg. F. The most efficient baking conditions are secured by exhausting a part of the furnace atmosphere and

re-circulating the balance. The design and installation of the oven provide for a minimum of lost heat. Upon leaving the oven, parts are inspected (Fig. 10), after which they continue into the packing and storage area, where they are unloaded from the conveyor. Parts are either stored or assembled immediately.

This combination of degreasing, electrostatic coating, and baking assures Curtis of a uniform high quality enamel finish for all steel surfaces.

Fig. 10—The paint finish inspector examines painted and baked luminaire parts as they leave the overhead baking oven and return to working level. Parts which pass inspection go to the unloading, assembly, and packing areas. (PRODUCTS FINISHING Staff Photos.)

★ ★ ★ ★ ★

Porcelain Enamel Gains Popularity in Construction

A far cry from the days of Jericho is the current movement toward lighter weight, thinner walls for buildings. M. Jesse Salton, president of Seaporcel Metals, Inc., manufacturer of architectural porcelain enamel products states that this trend has greatly increased his business.

Seaporcel makes insulated building panels which are completely-assembled walls providing building exterior and room interior surfaces in the same unit.

The panels, called Seaporclad, are a "sandwich" made by providing a face of porcelain enamel on steel, backing it with another rigid material such as steel or cement asbestos board, and then placing between these two layers an insulating core such as fiberglass, foamglass or celotex. In order to attain a flat, ripple-free surface, Seaporcel often laminates the porcelain enamel portion of the "sandwich" to another rigid material such as aluminum honeycomb or cement asbestos board. This lamination process is accomplished under heat and pressure and uses resinous cement for adherence.

Another reason for the boom in porcelain enamel is the strong demand recently for color in architecture. Panels are available in a wide range of colors, finishes, textures and patterns, and the colors cannot fade. One of the most colorful Seaporcel jobs to date is a school building in Niles, Illinois, using panels of yellow, green, lavender, red and orchid.

News about UNICHROME
Trade Mark

New process gives more corrosion

Savings in bright finishing start with the copper

Deposits from Unichrome Copper are so smooth, they reduce copper buffing time or help eliminate it entirely. Containing no cyanides, the pyrophosphate plating solution cuts costs of waste-disposal also.

While these two features prove most valuable to users of Unichrome Copper, there are many other operational advantages offered. Send for full data.

What's been happening in chromium plating?

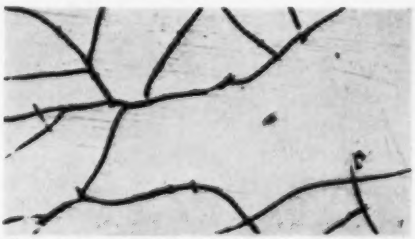
Major improvements in chromium plating in recent years have been due to characteristics of the Unichrome SRHS® Chromium Bath.

With its *speed*, SRHS Chromium helped cut plating time up to half. With its *self-regulation*, it simplified control for optimum plating balance. With its wider *bright plate range*, it cut down misplates. With its higher *cathode efficiency*, it saved power and stepped up production capacity of equipment.

These improvements are well documented by the records of hundreds upon hundreds of plants.

After many months outdoors, a .0005" deposit of ordinary chromium, plated directly on steel, was rust-covered.

Crack-Free Chromium, same thickness, was virtually unaffected.



Photomicrograph of etched ordinary chromium shows network of microscopic cracks.

(Right) Etched Crack-Free Chromium deposit shows no such imperfection.

COATINGS for METALS

Metallic . . . . . Organic . . . . . Decorative . . . . . Protective

-proof chromium plated finish

Experience with a relatively new kind of chromium finish reveals a most important difference in serviceability. This difference is graphically shown at left. Unichrome Crack-Free Chromium Plating proves definitely, measurably superior to ordinary chromium for certain types of applications . . . notably those where durability and protection are paramount.

REASONS WHY

Crack-Free Chromium is *structurally* different from ordinary chromium plate. It does not develop the typical network of microscopic cracks – even in thicknesses specified for "hard" chromium plating. Corrosives find no path to the underlying base metal. Rusting is blocked.

Crack-Free Chromium can be plated directly on steel or zinc base die castings. It does not depend on an undercoat of scarce nickel for long life.

OTHER ADVANTAGES

In other ways, too, the new finish proves superior to ordinary chromium. It resists thermal shock and gives better protection at elevated temperatures. It gives improved non galling, non seizing properties.

A satin, matte finish, Crack-Free Chromium can be left as is, or readily buffed to high luster. Ask for recommendations, or send for Bulletin CFC-1.

UNICHROME is a trademark of Metal & Thermit Corp.

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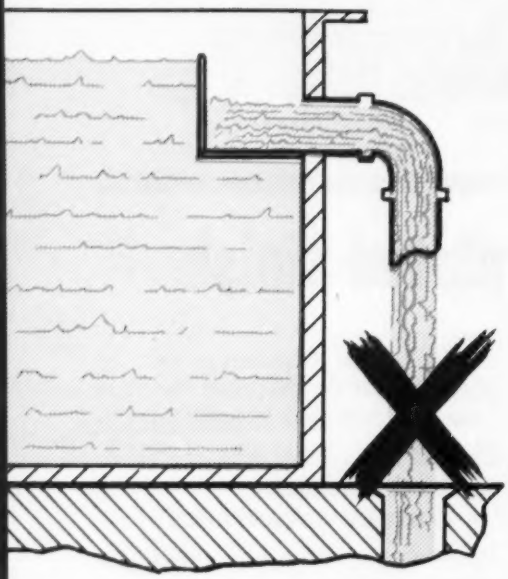


Recover that Plating Waste!

Waste disposal a headache? Here's one answer to the problem that returns usable plating solutions as a bonus.

By E. W. NEBEN
Assistant Chief Engineer
The Pfaudler Company
Rochester, New York

DISPOSAL OF PLATING WASTES has become an increasingly important consideration for platers in recent years—for two reasons. First, stricter laws governing disposal of waste into streams have been passed and existing laws are being enforced more rigidly. Secondly, the plater has begun to realize that many of the materials he uses are expensive, and that he is throwing dollars down the sewer by dumping plating waste into streams.

A trend toward adoption of a water pollution law agreeable to all states is gaining momentum. It appears that water pollution control is here to stay. Government agencies emphasize that the time to correct a disposal problem is now—before enforcement agencies demand that it be corrected. When this happens, time limits may be imposed that are not always convenient for production schedules.

In 1948 a Federal Statute, Public Law 845, made pollution of streams by industrial wastes a Federal responsibility. The states also discharge their duties in this field; but the Federal law is there to assure action by someone.

Even in states where some industries are now exempt from enforce-

ment of pollution laws, there appears to be some direction toward removal of exemptions to make compulsion of the laws universal. A number of states have added jail terms to stiffer fines, giving sharper teeth to their enforcement regulations.

The installation of plating solution recovery systems and waste disposal units in many plants indicates recognition by industry itself that a serious problem exists.

There are two ways to cope with the situation: either recover and reuse the "waste" solutions, or neutralize the waste chemically.

Many plating plants have had a recovery system installed which uses the simple process of concentration by evaporation to recover usable solutions. In the case of chromium plating baths, water is boiled away from dilute acid solutions to obtain a concentrated solution of plating strength. Thus polluted rinse water is no longer dumped into the sewer.

The system works by intercepting used wash water contaminated with chromic acid that would normally be thrown away. The water is removed from the acid-wash water solution by boiling it away in a still. The recovered acid is then returned to the plating tank and the purified water is recovered in a condenser and returned to the wash system.

In most plants wash tanks are operated on a continuous overflow basis. Generally, the flowing rinse is preceded with a still rinse. Effluent concentration usually ranges from 5 to 30 oz./gal. of chromic acid. Users of the recovery system allow the concentration to build up in the first rinse tank. This reduces the cost of evaporation. Chromic acid rinse tanks are operated most economically by allowing acid concentration to increase to a point below a level which could cause loss of the finish

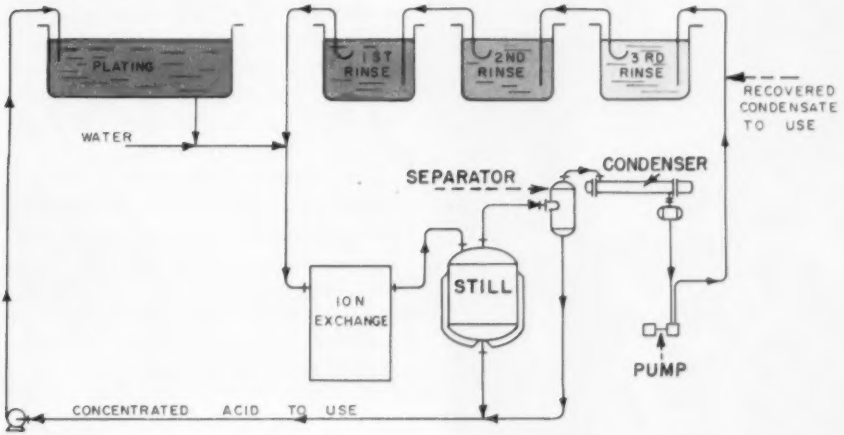


Fig. 1—Sketch of flow chart showing complete plating plant operations, including plating, ion-exchange and recovery systems, with overflow tanks. The unmarked vessels to the right of the ion-exchanger and below the rinse tanks represent the acid recovery system.

"The plating solution recovery system is adaptable to batch systems . . . or fully automatic operation . . ."

quality. This point is usually reached in about eight to ten hours. The wash water should then be transferred to a glass-lined steel still.

Operation of the glass-lined still is initiated by turning on steam to a jet exhauster to evacuate the system. A vacuum of 26 inches of mercury, which can be reached in less than thirty minutes, reduces pressure to draw the charge into the still and lowers the boiling point of the contaminated wash water to about 125 deg. F. By operating the still in this manner, evaporation is quicker and the "heat up" time is shorter.

After the system is evacuated, cooling water is turned on in the condenser, steam is turned on in the still jacket and evaporation is begun. The system's cyclone separator knocks any entrained particles of liquid out of the vapor stream and returns them to the still. Thus the separator permits only pure water vapor to reach the condenser.

At the conclusion of the operation, the steam to both kettle and jet is turned off. Vents, located as desired, are then opened to return the system to atmospheric pressure. At this point, there is a plating strength solution of acid in the still, which can be returned to the plating tank by pressuring the system with compressed air. Distilled water may be collected in a receiver tank if batch operation is desired, or it may be returned continuously to the rinse tank if the system is operated with continuous feed to the still.

The plating solution recovery system is adaptable to batch systems, semi-continuous systems, or a continuous, fully automatic operation, depending on plant operating conditions. Batch operations are usually preferred where there is only one eight-hour shift per day.

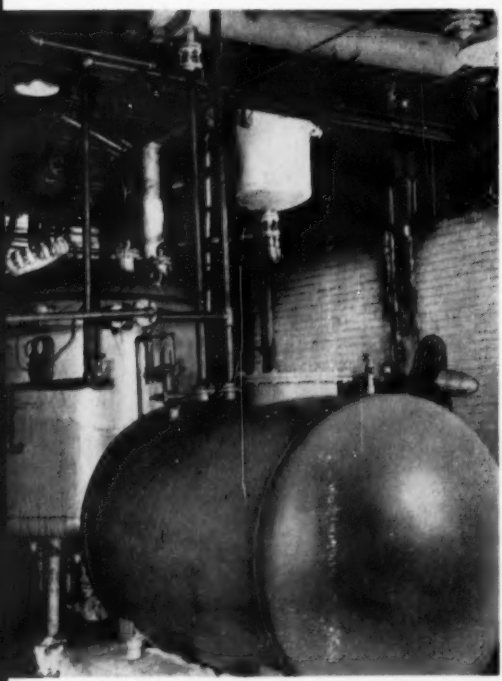


Fig. 2—Acid recovery system: condensate receiver, foreground; still is standing upright; thin horizontal vessel at top is the condenser; separator below and partly behind the beam.

Materials used to construct parts of the system are important, since many hot concentrated plating solutions are extremely corrosive and wash water must not pick up metallic contamination, if it is to be reused. Iron-free wash water assures the highest work quality. Acid-resistant glassed steel has been found by Pfaudler to be the only practical fabrication material that will resist the corrosive attack of acids such as 25 to 45 per cent chromic acid solution. Hence, the still is glass lined for corrosion resistance. The receiver is also of glassed steel, in this case to prevent metal pickup by distilled water. In other parts of the system, stainless steel is adequate to prevent iron pickup.

Adaptations of the system have been made to satisfy specific plating requirements. When chromium plating is applied for wear-resistance duty, as on airplane engine parts, the process differs slightly from one where the plate is purely decorative. In these heavier duty processes, impurities build up in the plating tank faster than dragout can remove them. For this reason all or part of the batch is purged periodically. Sometimes these dragout drippings are recovered in drip pans.

An ion-exchange system can be added to the standard acid recovery unit for removal of impurities. Because ion-exchange resins cannot stand the more concentrated solutions of chromic acid, the plating so-

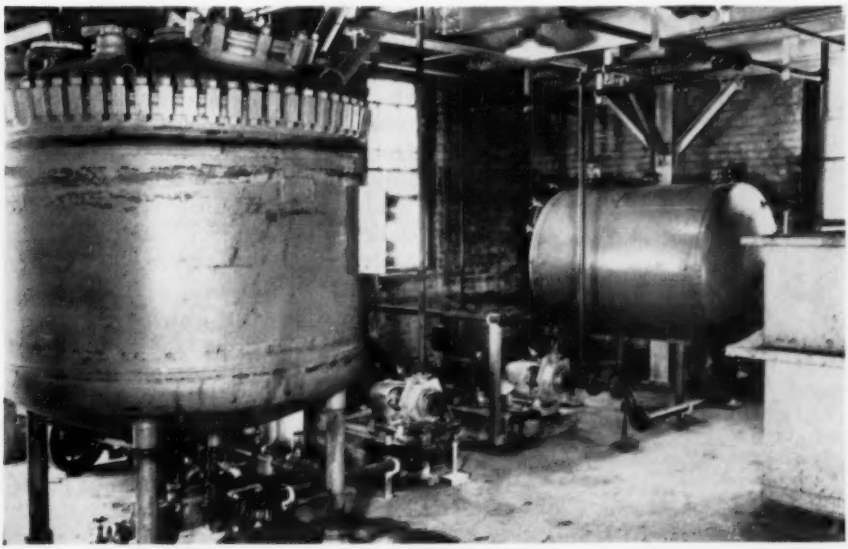


Fig. 3—Partial view of another installation of a plating solution recovery system, showing glass-lined still in the foreground, receiving tank in the background. Glass-lined still is used when corrosive acids are being used. It will resist even corrosives such as 25-45 per cent chromic acid solutions. (Photos courtesy Pfaudler Co., Rochester, N. Y.)

lution is diluted first and then run through the ion-exchange bed to remove impurities that have built up in use. Then it passes to the concentrating system to be brought up to industrial plating strength.

Other concentrated chromic acid baths are used for treating magnesium, zinc die castings, copper and copper alloys. These become ineffective as impurities build up. The combination of ion-exchange and subsequent concentration offers a practical means of regenerating the spent process solutions and also recovering the valuable metallic impurities.

"Mom wants her silverware replated—so I thought maybe you could sneak it in, eh?"

Recently, a large midwestern plating plant found that approximately one fifth of the chromic acid used was being "plated out" onto the work. By installing a chromic acid recovery system, this plant was able to recover much of the acid formerly lost. The recovery system was not only economical, but also eliminated a water pollution problem in the community.

Another plater was able to recover approximately 82.3 per cent of the chrome used by installing a solution recovery system with a 500-gallon-capacity still.

These recovery systems can be used to recover sulfuric and chromic acid solutions, some metal cleaners, nickel and nickel salts, copper, gold, silver and various cyanides. Low temperature operation permits handling of hard chrome plating baths containing fluoride additives.

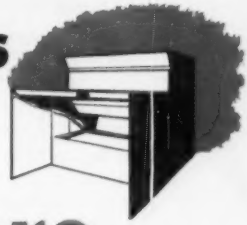
The standard recovery system is used to recover nickel and copper. Recovery of copper salts offers no problem. But, with nickel a foaming tendency must be corrected. This is done by preliminary treatment with activated carbon to remove foam producing agents.

In recovery of gold and silver from plating rinse waters, corrosion is not a serious obstacle. However, noble metal ions tend to form immersion deposits on steel, prohibiting use of steel equipment in their recovery. Glass-lined steel, or stainless steel in some cases, is acceptable. Success of recovery depends upon minimizing impurities in recovered distilled water and strict adherence to corrosion resistant materials of fabrication.

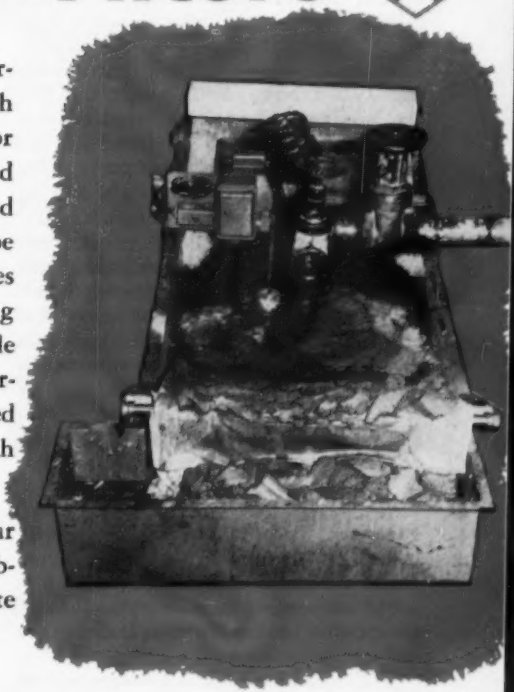
For more data on advertisement on opposite page circle **163** on Reader Service Card——————→

Profits Increase

WHEN WASH WATER BOOTHS ARE EQUIPPED WITH



Delpark *WASH WATER* Filters



Wash water spray booths can be operated continuously when equipped with Delpark Filters. Costly shut-downs for cleaning are eliminated. Deactivated paint from the overspray is filtered from the wash water before it can be recirculated causing plugged nozzles or before it settles in the tank causing water displacement. The savings made by using Delpark Filters mean important profits for you through reduced maintenance costs and increased booth efficiency.

There's a Delpark representative near you to help with your specific problems. There's no obligation. Write today for further information.

Delpark ... FIRST IN FILTRATION ADVANCEMENTS

INDUSTRIAL FILTRATION COMPANY

166 INDUSTRIAL AVENUE LEBANON, INDIANA

finishing clinic

Suggested solutions to problems submitted by readers. Send your problem to our Editorial Staff. There is no charge.

Metal Identification

Question: *We are interested in obtaining information which would help us in differentiating zinc from aluminum. At times, we are confronted with new help mixing the two together. We are looking for something that we can add to the coolant or lubricant that we are using to machine these parts. This cannot be anything that would be corrosive to the machines turning out these pieces.*

If there is nothing available that could be added to the coolant or lubricant, is there some kind of a spray that could be sprayed on these chips? The chips would have a certain amount of oil on them.

Any information or suggestions regarding the above will be appreciated.

J. S.

Answer: We are unable to suggest a chemical which you could add directly to the coolant or lubricant used to machine zinc and aluminum parts. Nor could we suggest anything which could be sprayed on the chips to indicate the difference between zinc and aluminum.

The quickest practical way to tell zinc from aluminum is to compare objects of approximately the same size by weight. The zinc parts will be appreciably heavier. A second suggestion is that chips which you wish to examine be degreased in trichloroethylene or some other similar solvent, and then dipped in strong muriatic acid. Zinc chips would form gas in much greater quantities than would the aluminum chips.

Unfortunately, for the purposes you have in mind, most of the chemicals which react with zinc and aluminum form compounds of the same color with each metal.

★ ★ ★

Rust Preventives

Question: *We are presently experiencing great difficulty with products that are heat treated and then tempered in salts. We are not successful in locating a neutralizing agent to prevent rusting of our products heat treated in this manner.*

We would appreciate any assistance you can extend in locating potential sources of supply for material to prevent and/or eliminate rusting.

G. L. E.

Answer: In accordance with your request, we are referring you to a number of manufacturers of rust preventives and removers who might be able to help you with your problem.

Precious Metal Plating

Question: *We have a number of questions on the quality control requirements for precious metal plating, particularly, gold, indium, and iridium on electronic equipment (contacts):*

1. What is the minimum thickness requirement?

2. If the thickness is specified on the drawing, what is the grade or quality of plating required, or possibly which alloy is concerned?

3. What assurance tests or quality requirements are necessary?

a. Adherence, porosity, electrical conductivity, abrasion resistance, and corrosion resistance are typical tests. Of these, which are applicable for routine checks? What test methods do you recommend?

4. What is the relative cost of plating of the various grades of gold (8-10-14-24 carat)?

We would appreciate any information you could furnish or recommend on precious metal plating.

G. C. F.

Answer: You have raised a number of interesting and important questions regarding the quality and quality control of precious metal plating. Answers to your questions may be obtained from two general sources of information: suppliers of gold and precious metal plating salts and solutions, several names of which we are referring to you; and, the American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa., who can supply you with information on specifications and methods of testing.

You may also be interested in reading the article, "New Markets and Techniques for Precious Metal Electroplates," which was published in the February issue of PRODUCTS FINISHING. We are enciosing a copy of the article.

Bronze Plating

Question: *We request that you furnish the names of any companies who could brass or bronze plate our coil stock to the color of a gold wedding band. The stock is as follows: High carbon steel, 0.006 inch thick by 0.881 inch wide, in coils approximately 2,500 feet long. These coils weigh about 40 lbs.*

We have 250,000 feet of this material to be plated. After plating it will be necessary for us to remove any protective film before further operations.

We will appreciate any information you could supply regarding possible sources for this work.

G. T. L.

Answer: In answer to your request, we are referring you to several sources of recommendations.

★ ★ ★

Paint Vehicles

Question: *Complex compounds have been incorporated into a new complete line of paints produced from an entirely new type of varnish (vehicle). We would greatly appreciate any available information on this line of paints based on various unbiased tests, such as, adhesion, metal surface preparation prior to application, moisture resistance, corrosion resistance obtained in salt spray cabinet using 20 per cent solution of sodium chloride, water immersion, lactic acid test, and so forth.*

T. J. P.

Answer: To obtain user experience on the products you mention request the producer of this line of paints to supply you with the names and addresses of two or three customers. Then you could contact each one to obtain the experience of each with regard to the factors listed above.

PAASCHE PRESENTS

A NEW LOW COST WATER WASH FINISHING BOOTH

TOP EFFICIENCY IN PERFORMANCE
LOWER COST TO INSTALL
LOWER COST TO OPERATE

This Paasche efficiency finishing booth, built to meet requirements of the National Board of Fire Underwriters, will pay for itself in minimum installation costs, lower plant maintenance costs, and reduced rejects. The non-clogging water nozzles give high efficiency air washing. Available in a full range of sizes in floor and shelf types. Heavy duty construction — manufactured from 18 gage steel with companion flanges and bolt holes at 6" centers. Simple sludge removal, ease of cleaning, high efficiency with less down time cuts maintenance costs. Consult your classified directory for nearest Paasche representative or write for complete specifications.

PAASCHE AIRBRUSH COMPANY

A DIVISION OF CLINE ELECTRIC MANUFACTURING COMPANY
1909 WEST DIVERSEY PARKWAY • CHICAGO 14

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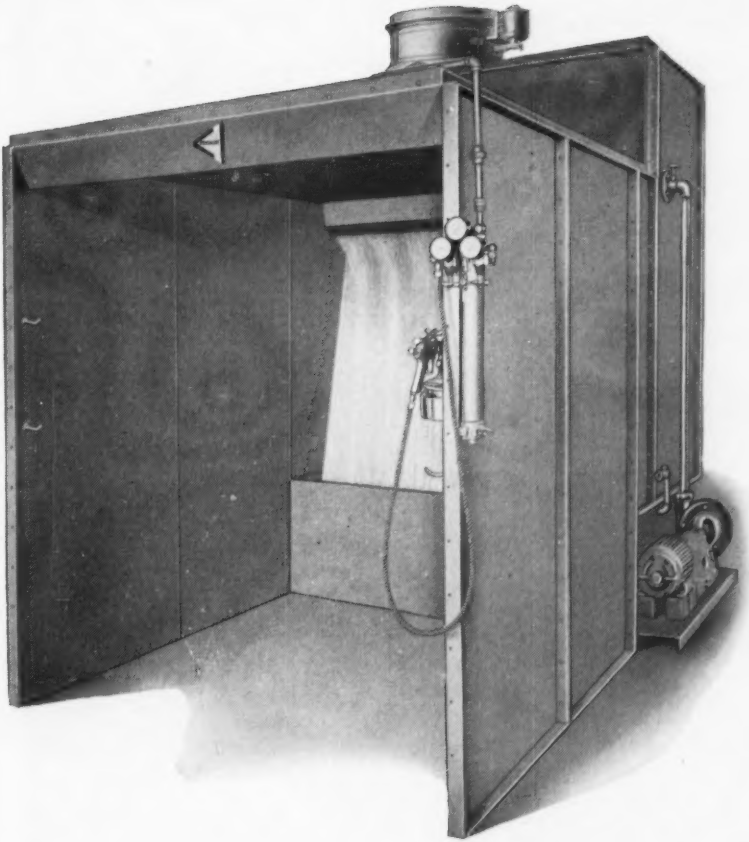
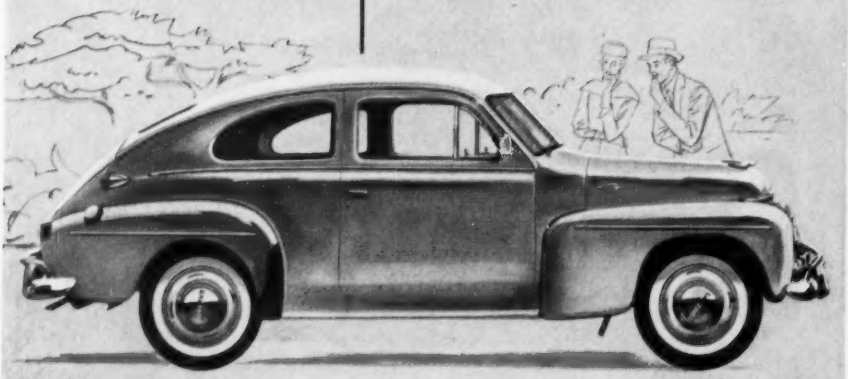


PARSCHE

Another car with

FOSBOND®

rust-protection...



VOLVO

(Sweden's biggest seller)

New in America, but for ten years the largest-selling auto in Sweden, the VOLVO assures its owners a car whose painted surfaces have the superior rust-protection of Pennsalt FOSBOND zinc phosphate coating.

Automotive, appliance, and furniture manufacturers: Give *your* products unsurpassed resistance to corrosion, impact, and paint-chipping—protect them with FOSBOND before organic finishing. Pennsalt's long experience in metal-processing chemistry can help you right from the cleaning stage to obtain the finest in zinc or iron phosphate paint-bond coatings.

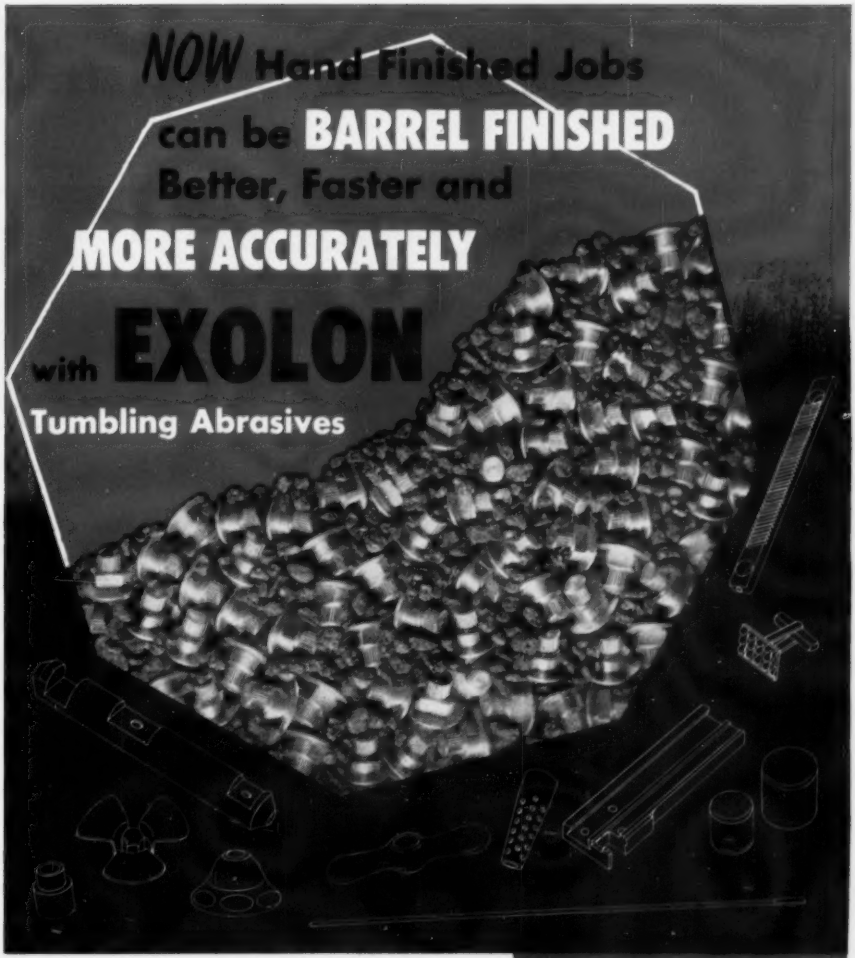
Hear what the Pennsalt man has to say about Fosbond for your present phosphating problems. Call him, or write Metal Processing Dept. 372, Pennsylvania Salt Manufacturing Company. East: Three Penn Center Plaza, Philadelphia 2, Pa.; West: 2020 Milvia Street, Berkeley 4, Calif. In Canada: Pennsalt Chemicals of Canada, Hamilton, Ontario.

Pennsalt Chemicals

METAL CLEANERS • PHOSPHATE COATINGS
COLD-WORKING LUBRICANTS

A BETTER START FOR YOUR FINISH

For more data circle **165** on Reader Service Card



Barrel Finishing today is an accurate, scientific method of metal removal. Gone are the days when tumbling was only used as a means of removing burrs, scale, etc. Now intricate parts are barrel finished with EXOLON the fast-cutting, long-life abrasive.

Exolon Tumbling Abrasive is produced from solid fused aluminum oxide and its abrasive characteristics are closely controlled during manufacture in the electric arc furnaces.

Let us barrel finish some parts for you, or we will be glad to send you trial lots of Exolon Barrel Finishing Abrasives. Write for complete information.

Exolon Tumbling Abrasive is available in sizes from 2½" down

THE EXOLON COMPANY 943 East Niagara Street, Tonawanda, N. Y.

Manufacturers of Silicon Carbide and Aluminum Oxide Abrasives

For more data circle 166 on Reader Service Card

Diversification in

By EZRA A. BLOUNT
Editor

Fig. 1—M. E. Awtrey (right) inspects chromium plated inner seal ring for blast furnace following its removal from the 785-gallon chromium plating tank. Plastic floats are used on the solution surface to control fumes, which are very difficult to exhaust from this wide tank.

Fig. 2—Another view of the tank used to hard chromium plate the blast furnace inner seal rings and other large parts. Note heavy frame built completely around the top of the tank, which must support the 1¼-ton segment while it is being plated. Down-draft exhaust ducts are shown. (Photos 1 and 2 courtesy Simmons Plating Works, Inc.)

Fig. 3—Silver plater removes knives from Silver-Lume plating solution. Cathode rod agitator is in left foreground. The Powers temperature regulator in background holds the solution temperature at 100 deg. F. The Clinton 9-volt, 500-ampere rectifier visible in left background supplies power for the installation. (PRODUCTS FINISHING Staff Photo.)

Job Plating Plant

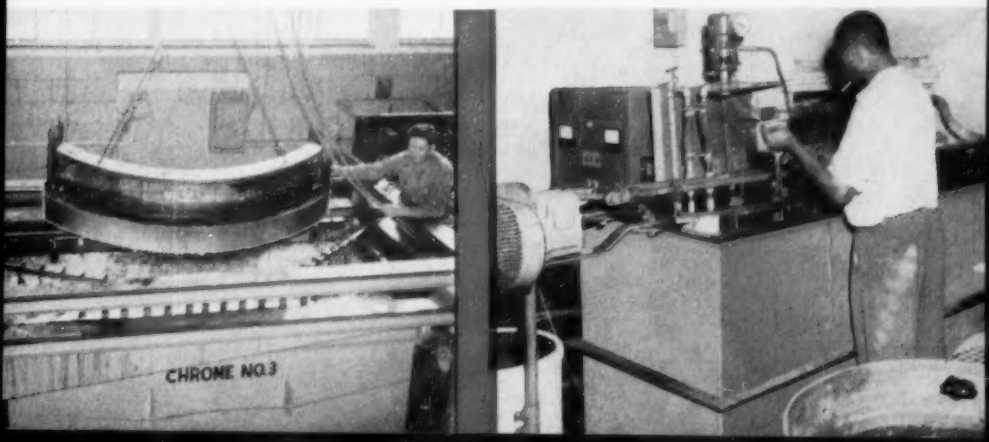
JOB PLATERS ARE FREQUENTLY URGED TO DIVERSIFY their services so that total volume will not be adversely affected by a temporary drop in a specific line. One job plating organization that has taken such advice seriously is Simmons Plating Works, Inc., of Atlanta, Georgia. This company operates three plants in Atlanta: one for retinning operations, one for gold, silver, and precious metal plating, and one for cadmium, zinc, decorative and hard chromium plating.

Hard chromium plating techniques are well known to Simmons supervisors, since the company has hard chrome plated the bores of a great many cannon barrels for Army Ordnance. However, one hard chromium plating job performed by Simmons that was particularly challenging was the chromium plating of the four segments of the inner seal ring for a blast furnace. Figures 1 and 2 are views of a segment being removed from the 785-gallon chromium plating tank after completion of the hard chrome plating.

These factors contributed to the difficulty of this job: plating had to be very uniform over the surfaces of each segment; certain areas and sections had to be masked to prevent the deposition of chromium on those areas; plating on the bearing surfaces must be 0.015 inch thick.

A job of this kind requires a special arrangement of anodes. As can be noted in Figures 1 and 2, the anode rod was curved to match the curve of the surface to be plated, and the anodes were hung on this curved rod so that anode-to-cathode distances were uniform.

In accordance with conventional



hard chromium plating procedure, a segment is degreased and placed in the chromium plating tank. As soon as the segment has come to the temperature of the solution, the current is reversed for a short time. Then the rings are chromium plated by conventional procedures. The solution contains 33 oz./gal. chromic acid and has a sulfate ratio of 100:1.

When the four segments of the inner seal ring are assembled, the ring is six feet in diameter and weighs six tons. It rotates on top of a blast furnace, and is subject to the terrific heat generated by the furnace, as well as the constant abrasive pounding from its contents. The hard chrome plate prevents corrosion, is not affected by the high temperature, gives good service life, and requires less power for rotation of the seal ring.

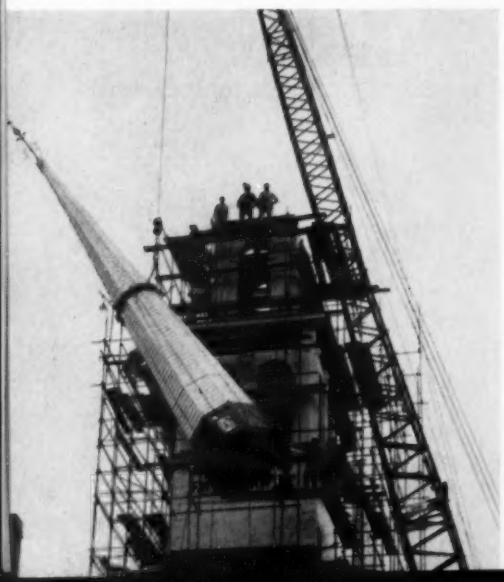
Bright Silver Plating

In sharp contrast to the hard chrome operation just described is the silver plating done on tableware in another Simmons plant. Figure 3 is a view of the 440-gallon bright silver plating tank. The operator is shown removing table knives from the tank, following silver plating on the stainless steel knife handles. Procedure for this process is as follows:

1. Alkali clean.
2. Water rinse.
3. Strike in Wood's high chloride nickel solution.
4. Water rinse.
5. Strike in Udylite 514 bright nickel solution.
6. Water rinse.
7. Bright silver plate in Hanson-Van Winkle-Munning Silver-Lume plating bath.
8. Concentration rinse.
9. Final hot water rinse.

Simmons Plating also maintains facilities to repair silverware prior to replating. Finishes which can be specified for this group of products include: Butler, a dull or satin finish; Colonial, a soft, semi-bright finish; and Burnished, a bright finish.

★ ★ ★ ★ ★



Protecting Old North Church Steeple

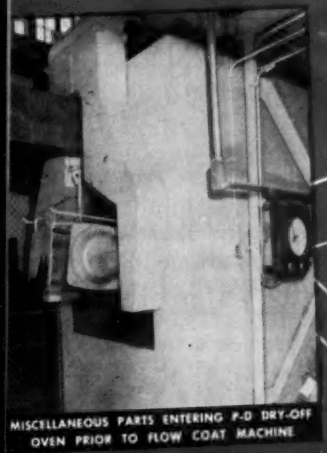
It was necessary to find a durable surface coating when Old North Church steeple in Boston was recently restored. Charles R. Strickland, the architect appointed by the sponsoring Lantern League, decided on an Epon resin preparation for the lead covered copper spire. The Epon resin XA-200 finish was donated by Shell Chemical Corp. Accompanying photograph shows workmen hoisting completed spire into place.

For more data on advertisement on opposite page circle **167** on Reader Service Card——————→

CROSSROADS OF PRODUCTION MEET IN A 60 FT. SQUARE

5-Stage Power Spray Phosphatizing System with Flow Coat Painting and Roof-Top Baking Ovens

by PETERS-DALTON



MISCELLANEOUS PARTS ENTERING P-D DRY-OFF OVEN PRIOR TO FLOW COAT MACHINE

MISCELLANEOUS PARTS ENTERING P-D 5-STAGE PHOSPHATIZING MACHINE

Here in this divisional plant of a major appliance manufacturer, a carefully chosen location with economy of space for finishing operations was most necessary. Although the building has a huge one floor area, the many fabricating and assembling operations are space consuming. To co-ordinate these phases with finishing operations required detailed study and design by Peters-Dalton engineers. Results: A Complete Set-Up — 5-Stage Power Spray Phosphatizing System, Flow Coat Painting, and Roof-Top Baking Ovens—all installed in an area 60' x 60' square. Conveyor units carry parts of various sizes through these operations continuously and deliver them completely finished to the final assembly stations.

These compact, efficient units — designed, fabricated and installed by Peters-Dalton — include a 5-stage Power Spray Phosphatizing System with: Stage 1, Wash at 180° — Stage 2, Rinse at 180° — Stage 3, Phosphatizing at 160° to 180° — Stage 4, Cold Rinse — Stage 5, Chromic Acid Rinse at 140° - temperatures are maintained with gas fired P-D vertical heaters. The low pressure Flow Coat Painting is at 100 g.p.m., with viscosity control and solvent flush system. The Roof-Top Baking Ovens are heated by direct fired gas heaters with set cycles; dry-off of 300° for 4 minutes; prime bake at 350° for 15 minutes; white enamel at 400° for 30 minutes. The system handles miscellaneous metal parts at conveyor speeds of 6 ft. per minute, with a weight capacity of 9M lbs. per hour. As in all Peters-Dalton installations, pumps of adequate capacity, correctly sized piping and spray nozzles, drain separations, exhaust ventilation, etc. etc., have been most carefully engineered and installed to meet all requirements.

Whether your needs are for small or large equipment, depend with confidence upon Peters-Dalton. Just write, wire or phone — we'll be glad to tell you more.

Representatives in Principal Cities

- *Hydro-Whirl Paint Spray Booths*
- *Industrial Washing Equipment*
- *Drying and Baking Ovens*
- *Hydro-Whirl Dust Collecting Systems*

PD Peters-Dalton INC.

A SUBSIDIARY OF DETROIT HARVESTER CO.

17900 Ryan Road • Detroit 12, Michigan

Finishes Tested by Sun and Weather

South Florida Test Service Celebrates 25th Anniversary

By EZRA A. BLOUNT, Editor

EXPOSURE TESTING IS A 24-HOUR, 7-DAY-A-WEEK BUSINESS. For the past 25 years, South Florida Test Service, Miami, Florida, has conducted exposure tests on paint and electroplate coatings, and on various manufactured products for an ever-increasing number of clients. Testing service has been performed for many of the leading companies in the United States, England, Canada and South America, and for the U. S. Air Force and other government agencies.

For quite a number of years, the value of exposure tests in the southern part of Florida has been recognized. Many such tests have been made on painted and plated coatings, as well as other products. One reason for the increasing adoption of exposure tests to supplement or replace artificial accelerated tests is that it has been difficult to correlate the results obtained from accelerated service tests with actual service conditions. In the South Florida area, the annual amount of solar radiation is much greater than that experienced in northern areas of the United States. The continual climatological combinations of warm temperature, humidity, and the sun's rays seems to provide a natural accelerated service test. These conditions are conducive to rapid finish failure and represent perhaps the most severe service conditions which products normally experience.

South Florida Test Service, founded in 1931, has grown from a staff of one to the present staff of 17, headed by two registered professional engineers. Test operations are supervised by Earl M. DeNoon, owner and director, Warren W. Smith, supervising chemical engineer, and Helen L. Blake, supervisor of tests. South Florida Test Service maintains memberships in American Chemical Society, American Society for Metals, American Society for Testing Materials, Florida Engineering Society, Florida Society of Professional Engineers, National Association of Corrosion Engineers, Society of the Plastics Industry, American Council of Independent

Laboratories, and other technical and business groups.

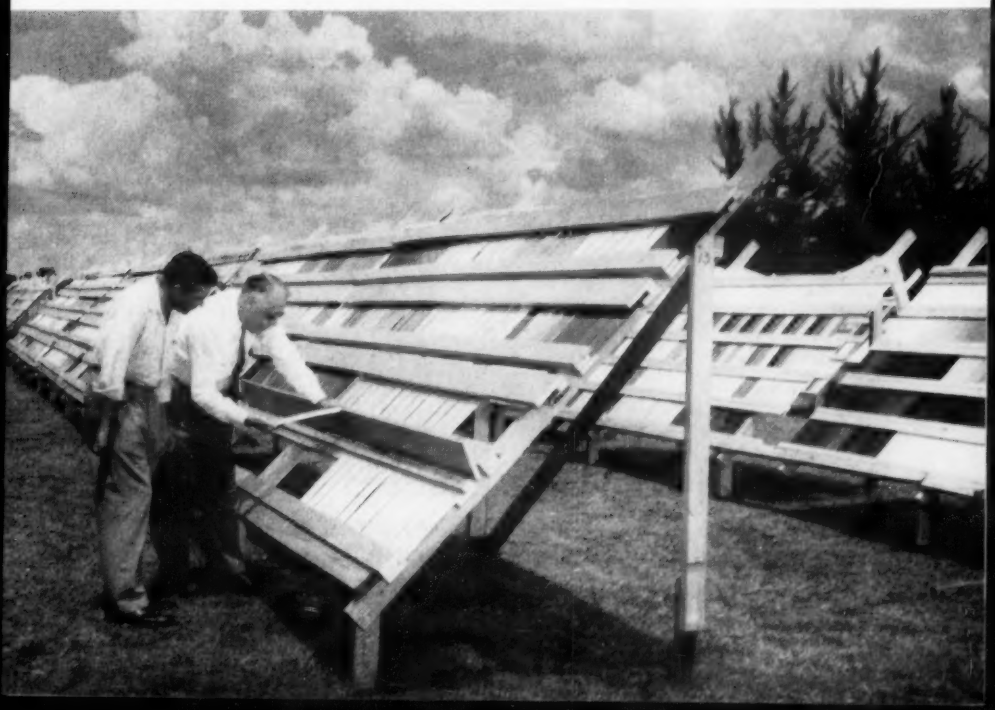
Fig. 1—Warren W. Smith (left) confers with Earl M. DeNoon, owner and director of South Florida Test Service, on client's problem.

Facilities

Testing locations maintained in South Florida by the company are as follows:

1. Inland main proving grounds for general weathering and sunlight tests.
2. Salt atmospheric (seashore location).

Fig. 2—Routine examination of painted metal panels exposed on large wooden frames constitutes one of the major activities at South Florida Test Service. Here Mr. Smith and Mr. DeNoon examine one of the samples of a client's product. Mr. DeNoon has just raised the wooden shield which protects the upper portion of each sample. Testing in this manner shows a contrast between atmospheric deterioration and that caused by the sun's rays.



". . . approximately 15,000 test panels . . . are now on test."

3. Tidewater (alternate sea water immersion).
4. Total (continuous sea water immersion).
5. Reserve inland proving grounds.

Two testing laboratory buildings are fully equipped and staffed for the preparation of samples, routine periodic inspection, salt spray (fog) testing, and other physical and chemical tests.

Recently a new testing laboratory was built to make possible a greater volume of tests on finishes and other products. The tests carried on in the new building include standard A.S.T.M. physical and chemical tests, standard paint tests, and other standard physical tests.

Facilities of the South Florida Test Service, in addition to the four test sites containing frames for product or panel exposure, include complete facilities for sample preparation and evaluation.

The varying nature of the coatings, materials and products tested makes various tests or a combination of tests desirable. Among the types of tests performed are natural weathering, resistance to the effects of sunlight and corrosion, exposure to both inland and salt atmospheric conditions, sea water immersion (tidewater or total), sunlight tests

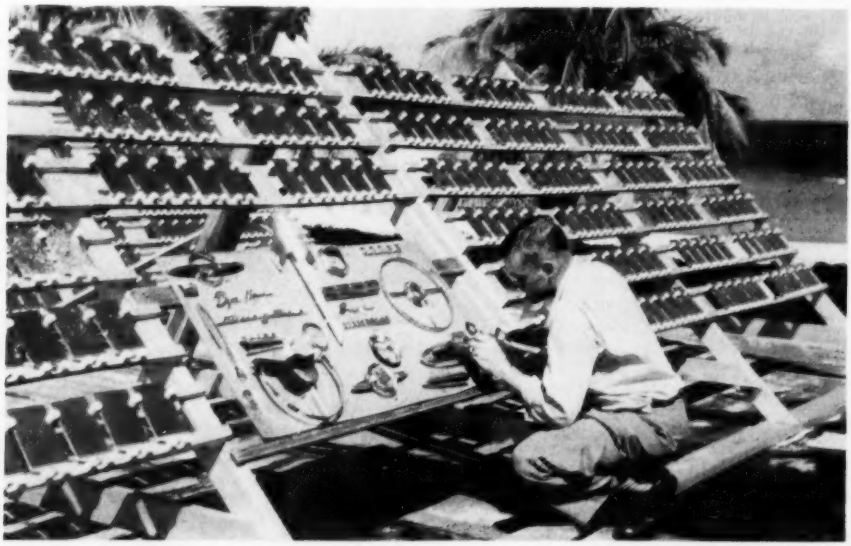


Fig. 3—Warren Smith inspects a rack of plated products exposed at a salt atmospheric test site located near the Atlantic Ocean. Many of these are plated automotive parts.

Fig. 4—The comparatively small group of samples being tested above marked the beginning of South Florida Test Service 25 years ago. Now about 15,000 panels are on test.

under glass, and special tests as specified by the client.

Products tested include air conditioning units, auto accessories, bicycles, instrument dials, electrical apparatus, emblems, finishes, hardware, enamels, lacquers, metals, refrigerators, screens, tools, and other products.

Metals or electroplated coatings of various metals can be tested by immersion, or on racks located near the sea coast in one of the four test sites operated by South Florida Test Service. These tests are conducted in accordance with accepted testing procedures. Normally, samples are inspected once a month or more frequently if the nature of the test so specifies.

At the present time, approximately 15,000 test panels, prepared by applying various types of coatings over metal, wood, concrete or stucco, are on test. These panels may be prepared by clients or in the South Florida Test Service laboratories. In addition thousands of other types of samples such as plastics, textiles, and rubber, are on test. Complete facilities are available for preparing standard panels so that reproducible results may be obtained.

Painted panels are exposed on racks facing south, mounted at a 45-degree angle. To secure a visual evaluation of the amount of fading or deterioration, the upper areas of painted panels may be covered so that only the lower areas are exposed. These panels are inspected once a month visually, a gloss reading is recorded, and the panels are examined under the microscope. Color changes as determined with a MacBeth Examilite and tristimulus colorimeter are recorded.

Variations in the general methods of testing painted panels may be made. To simulate service conditions a little more accurately, some areas of panels containing automotive finishes are polished once a month. This test, of course, shows the way the finish will stand up under periodic polishing as compared

Fig. 5—View of the new testing laboratory recently erected at the main inland proving grounds of South Florida Test Service. Physical and chemical testing are performed.

with its durability in the absence of periodic polishing. Automotive finishes generally are tested for a period of six months. Refrigerator and air conditioner finishes are tested from six months to a year. Additional tests are made on these panels noting rust creepage from a diagonal scratch. Other panels containing refrigerator finishes may be tested under glass to determine yellowing, and in the humidity cabinet to provide evidence of service in extremely humid conditions.

Some clear lacquers or baked enamels are applied over chromium plate and then submitted to exposure tests. Dyed anodized coatings are tested to determine fading and other characteristics. Similar tests

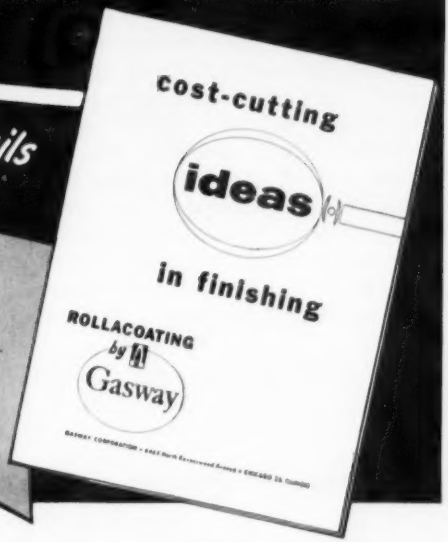
Fig. 6—This device picks up solar radiation directly (top) and under glass (foreground). Impulses are transmitted to recording instruments (Fig. 7). Thus complete record of temperatures during any test period is available.

Fig. 7—These recording instruments transcribe and record impulses transmitted by the instrument shown in Fig. 6. (Figs. 1 and 2, PRODUCTS FINISHING Staff Photos. Figs. 3, 4, 5, 6, 7 courtesy South Florida Test Service.)

Every production man should have a copy of this fact file on ROLLACOATING

Complete details on how to:

- Cut Costs
- Increase Production
- Save up to 50% on coating materials



GET ALL THE FACTS—This new complete file gives you case-histories of successful roller coating applications on many different products such as signs, plywood panels, building products, metal stampings, awnings, siding, etc. Gives all the details on coating machines for individual panels as well as continuous metal strip cleaning, treating and coating lines. Shows how metal can be formed *after* coating without marring finishes. Send for your copy of this FREE fact file today!

Gasway CORPORATION

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LOOK TO GASWAY FOR EFFICIENT, HIGH PRODUCTION COATING OF STRIP, SHEET OR PANELS

For more data circle **168** on Reader Service Card

are performed on clear tinted lacquers used on some plated surfaces.

Tests on some paint surfaces combine normal exposure tests with the effects of mildew formation. This test is of importance to manufacturers of painted aluminum siding.

Exposure tests on subassemblies or complete assemblies of plated parts are also conducted. Such products include automotive subassemblies, aircraft subassemblies (to determine the effect of bimetallic corrosion), parking meters, light meters, camera and radar components, dish washers, cash registers, and other products. Tests of this nature have demonstrated the fact that many product designers do not take proper cognizance of the effects of bimetallic corrosion.

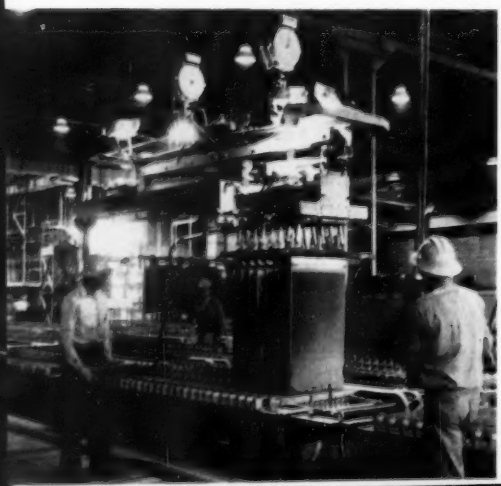
Other tests include functional service tests on various completed products. Haze and light transmission tests are performed on some products or subassemblies.

Automatic gauges record rainfall, temperature and humidity on a 24-hour, 7-day-a-week basis. Facilities are available to record automatically temperatures of samples being tested on a 24-hour basis. Solar radiation in terms of heat energy, either under a protecting glass panel or direct, can be measured and recorded. A humidity room in which conditions of temperature and humidity can be adjusted and controlled makes possible severe service tests of finish durability.

★ ★ ★ ★ ★

Commercial Production of Electrolytic Manganese

Production of electrolytic manganese has been started by Electro Metallurgical Company, a Division of Union Carbide and Carbon Corporation, at a new plant in Marietta, Ohio. The plant has a total capacity of about 6,000 tons a year when all of the electrolytic units are in full operation.

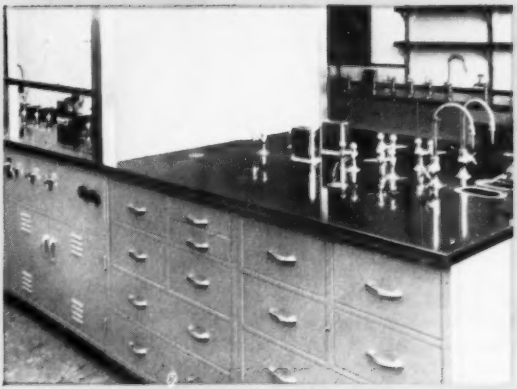


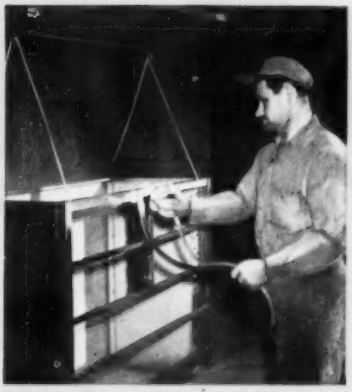
The electrolytic process being used by Electromet produces minimum 99.9 per cent pure manganese metal in plate form about ⅛ in. thick. The metal is suitable for all uses where high purity manganese is required.

Accompanying photograph shows the cell room of the Electro Metallurgical Company's new plant.

For more data on advertisement on opposite page circle **169** on Reader Service Card ——————→

EPON® RESIN does it!





Laboratory furniture sprayed with Epon resin finish supplied by Glidden Co., Cleveland, and Egyptian Lacquer Mfg. Co., South Kearny, N. J., and Lafayette, Ind.

Browne-Morse Co. found a tough, chemical-resistant coating for laboratory furniture . . .

HERE'S HOW . . .

LABORATORY FURNITURE leads a tough life. It requires a coating that withstands hard knocks and chemical attack.

To find such a coating Browne-Morse of Muskegon, Michigan, tested various formulations by applying them to steel panels, which were then exposed to corrosive laboratory chemicals. Performance was evaluated by the time required for any break-through, softening, or change in color or appearance.

Only those coating formulations based on Epon resin passed these tough tests satisfactorily. They combined excellent chemical resistance with outstanding adhesion to steel and aluminum. The Epon resin coatings resisted scuffing and impact and didn't crack or spall—even when severely dented. Epon resin coatings are now standard for all Browne-Morse laboratory furniture.

Are you aware of the advantages of Epon resin? Do you want excellent adhesion, resistance to abrasion and impact, ability to withstand extremes of heat, humidity, and the attack of corrosive chemicals?

If *you* need a long-lasting, dependable surface coating that can withstand the extremes of heat, humidity, corrosive atmosphere and rough handling . . . ask for Epon resin-based coatings. You can call on our sales offices for names of suppliers. Write for the new brochure, "Planning to Paint a Pyramid?"

SHELL CHEMICAL CORPORATION

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SHELL

BARREL FINISHING Principles

By H. LEROY BEAVER
Beaver Barrel Finishing Research
Lansdale, Pa.

Selecting the "Best" Burnishing Barrel

"WHICH IS THE BEST BURNISHING BARREL?" The answer to that question, of course, is that there is no one "best" burnishing barrel, but there is always the most satisfactory existing type for a particular burnishing process. A careful analysis of all the parts a manufacturer wishes to finish by the barrel method will show that certain features of one type of barrel are more applicable for the major portion of the parts to be burnished. Therefore, that barrel is the "best" barrel for this purpose.

As outlined in a previous paper, the two predominating types of burnishing barrels in use in this country are the high and narrow type "A" and the long and narrow type "B" of Baird. One basic difference between type "A" and type "B" is herewith illustrated. A type "A" barrel designated as an 8-inch by 24-inch size would indicate a barrel 8 inches in width by 24 inches in diameter. Such a barrel will carry a nominal load of burnishing material of 350 pounds. A type "B" barrel designated as an 8-inch by 24-inch size would indicate a barrel 24 inches in width and 8 inches in diameter, and such a barrel would carry a normal operating load of burnishing material of 125 pounds. So in designating a barrel it is most important to know whether a type "A" or "B" is indicated, for the dimensions are the same, except that they are reversed as to width and diameter.

The burnishing process is accomplished by the action of a combination of forces working within the barrel when in operation; principally, by the action of the resultant force bearing against the parts to be burnished while passing through the burnishing mass. Hence, the shape, weight, and the resistance to permanent deformation of the parts being burnished must always be taken in-

to consideration when purchasing a burnishing barrel. The safe measure is to adopt a barrel that will exert the maximum of pressure without deforming the parts. Parts of fairly heavy gauge material, formed with supporting angles or deep drawn sections, will be readily deformed. For such parts, type "A" barrel is always indicated because it concentrates the maximum of pressure within a small area of width. If the parts are of light gauge or of intricate, delicate, or extended formation, the type "B" barrel should be used. This is true because a lighter load of burnishing material is carried, and because parts are distributed over a wider area and are burnished at a lower pressure. Every case of a barrel installation should be handled as a separate and distinct proposition based exclusively on the kind of parts to be finished.

If parts must be supported in or on racks, then what is the "best" type of barrel? Type "A" does not readily adapt itself to the racking of parts to be burnished and type "B" only partially so. The better type of barrel for racking work to be burnished would be type "U," where the upper one-third of the barrel composes the lid. In such a barrel the lid can be lifted, the rack containing the parts placed therein, the burnishing material added, and the work successfully processed. The interior of a type "U" barrel may be fitted with slotted metal plates into which partitions may be inserted. In this type of barrel processes can be closely controlled by varying the area of the barrel used. This, of course, varies the capacity of the barrel as well as the amount of pressure of the resultant force. Where parts must be racked for burnishing and tightly secured to the racking device so that

Editor's Note:
H. LeRoy Beaver, during his long association with PRODUCTS FINISHING as a consulting and contributing editor, has prepared more than 100 articles on the subject of "Barrel Finishing of Metal Products." Since basic principles of barrel finishing, like other basic principles, do not change, we will present again a number of Mr. Beaver's articles so that present day finishers may benefit from his years of experience and personal knowledge of this important metal finishing process.

"They say that old Ed got fired. Boy, I can still feel him breathing down my neck."

". . . there are few metal parts indeed that cannot be barrel burnished."

they cannot turn in all directions, the driving mechanism should be such that the barrel may be reversed, thus presenting every part of the racked work to an equal burnishing pressure.

Among the type "B" barrels now available, there are at least three different models wherein the barrel may be operated in other than a horizontal position. The open end of the barrel may be tilted upward and in this position it theoretically approximates the action of the conventional oblique tilting type barrel—which is invariably a pear-shaped barrel, having a smaller diameter at its mouth than at its base. A barrel with parallel sides and with the same diameter at the mouth as at the base can never approximate the action secured in a pear-shaped barrel. As the mouth of the barrel is raised from the horizontal position, the load of burnishing material rises to completely fill the barrel from side to side. The higher the mouth of the barrel is raised toward the perpendicular position, the more retarded is the motion within the barrel burnishing mass, until it approaches a point where all motion of the mass ceases and it lies inert and simply idles with the barrel. Strictly considered, the oblique tilting barrels, while at times used for burnishing work, are more generally considered as "tumbling" barrels, and will be discussed in a later paper.

The type "T" barrel is used for burnishing small quantities of a large variety of parts such as we would find in the jewelry trades. The present day tubbing machine, type "T," differs not at all from the original of Barton. It could be improved if the wooden tank or tub were eliminated, and a half-round, lightweight metal trough substituted. The rack for carrying the separate barrel units might remain substantially the same, but should be made from metal rather than wood. Instead of the perforations in the barrel units to permit ingress and egress of the soapy water lubricant solution, the units should be made water tight. The soap lubricant, along with the metallic burnishing material and parts to be burnished, should be carried in the barrel unit. There are a multitude of applications for sectional barrels of this type. In applications where small lots are burnished at one time, type "T" barrels may be used to splendid advantage.

"Is it mechanically possible to barrel burnish this part, or this line of materials?" This question can generally be answered by a simple "yes," because there are few metal parts indeed that cannot be barrel burnished. The important question is, however, whether the operation would be commercially practicable or not. Even though many parts are easily burnished, the operation may be so involved, time required too long, or equipment requirements entirely too great to make barrel finishing profitable.

The element of time must also be considered. Some parts can be satisfactorily burnished in 20 minutes,

EGYPTIAN "COMPOSITE BAKE"* METAL PRIMERS can double your oven capacity too!

***"Composite Bake" . . . the simultaneous baking of the Egyptian System of Metal Primers and Top Coat in one pass thru the oven.**

Recently one of America's largest Manufacturers of Air Conditioning Equipment† found himself wrestling with the finishing room bug-a-boo that eventually plagues every volume product manufacturer . . . overtaxed oven facilities – resulting in non-productive finishing room man-hours.

At the suggestion of his Egyptian Finishes Specialist he momentarily laid aside the obvious solution . . . additional baking units – and made a trial run, switching to Egyptian "Composite Bake" Metal Primers.

Here's how the tally sheet read: (1)-Oven capacity doubled. (2)– Non-productive man-hours practically eliminated. (3)– No additional baking equipment required.

In addition to these production advantages, Egyptian "Composite Bake" Metal Primers brought these highly desirable finishing characteristics:

†Name upon request.

- **EXCELLENT ADHESION to practically any metal surface.**
- **WILL TAKE MOST ANY TOP COAT—Lacquer or Synthetic Enamel.**
- **SMOOTH FILM and excellent "Enamel-Holdout"**
- **GOOD RUST RESISTANCE—Corrosion Inhibiting Pigments.**
- **SUITABLE FOR EXTERIOR EXPOSURES.**

Listening to the complete Egyptian "Composite Bake" Story could point out the way to cut costs in your finishing room too. Invite an Egyptian Industrial Finishes Specialist to call on you TODAY, or write for detailed information. No obligation of course.

EGYPTIAN *Industrial Finishes*

The EGYPTIAN LACQUER MANUFACTURING COMPANY

BOX 444, NEWARK 1, NEW JERSEY

EXECUTIVE OFFICES, ROCKEFELLER CENTER, N. Y. • Plants: South Kearny, N. J.—Lafayette, Ind.

For more data circle 170 on Reader Service Card

while others may require anywhere from 8 to 12 or up to 20 hours.

We invite the barrel purchaser to consider the following suggestions in determining the most satisfactory barrel for his work:

1. Submit a sample of the part or parts you wish to burnish to at least one manufacturer of each type of barrel for a demonstration finish. (PRODUCTS FINISHING will gladly supply the names and addresses of barrel manufacturers.)
2. Insist on a definite statement by the manufacturer regarding the parts which can be burnished in one barrel load.
3. Ask the barrel manufacturer for data on the length of time required to satisfactorily burnish one load of parts with a finish comparable to that of the demonstration sample piece or pieces submitted to him, burnished by him, and returned to you.
4. Request a guarantee by the barrel supplier to produce a finish equal to the sample submitted on production lots in your own plant.
5. Request a definite statement by the barrel manufacturer as to just what operation or operations were performed by him on your samples prior to the actual burnishing operation, such as alkaline cleaning, acid dipping, and so on.
6. Request data on space required for installation, and the amount of power required.
7. Request comment on use of an automatic loading device for returning the metallic burnishing materials to the barrel after the completion of the burnishing process.

"Of course I said our employees should cultivate hobbies . . . But not on company time!"

With the information derived from the answers to the suggested questions you will be able to judge whether barrel finishing will increase your production and cut your costs, and whether it would be a practicable addition to your manufacturing equipment.

It is obviously impossible to lay down any hard and fast rule governing the selection of any type or size of burnishing barrel without complete knowledge of what will be required of it. Every case should be determined on its merits, after a most careful survey and analysis of production parts.

For more data on advertisement on opposite page circle 171 on Reader Service Card

THE MODERN CONCEPT— AUTOMATIC PRECISION BARREL PLATING AND PROCESSING

The Stevens "Super-S" Automatic Barrel Plating and Processing machine for high production, quality metal finishes at low cost.

FREDERIC B. STEVENS
INCORPORATED
YOUR METAL FINISHING SUPERMARKET
DETROIT 16, MICHIGAN

THE MODERN CONCEPT— AUTOMATIC BARREL TUMBLING AND FINISHING

Deburring, descaling, burnishing and similar barrel finishing treatments can be accomplished in high volume, with tremendously reduced costs, increased efficiency and higher quality control standards with the NEW

ROTO-MERSION MACHINE

SEE DETAILS NEXT PAGE

FEATURES OF THE STEVENS SUPER "E"
AUTOMATIC BARREL PLATING AND PROCESSING MACHINE

Designed for the plating or processing of bulk metal parts in large volume. It provides a complete processing cycle of cleaning, acid, strike, plating, rinses, bright dip, chromate dip and drying – all fully automatic, and in one return type unit.

Stevens Automatic Barrel Machines are now being used for copper, tin, cadmium, zinc and nickel plating. They are also now in operation for cleaning, washing, phosphating, stripping, alroking, lubriting and many other similar types of immersion processing.

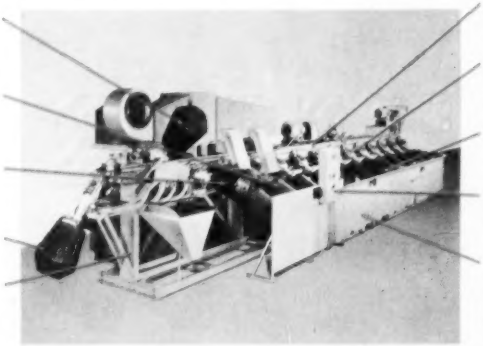
Automatic Load and Unload – is possible since there are no barrel lids to manually open or close.

Waste Control Minimized – because of less dragout, a minimum spillage factor and controlled rinsing.

Less Dragout – is positively assured. Simple, clean construction of cylindrical barrel reduces costly solution carry out.

Guaranteed Production Output – is ensured and known in advance with pre-determined barrel loads.

Low Cost Installation – is possible because mechanism is 100% pre-assembled.



Mechanical Flexibility—resulting from the machine's inherent mechanical simplicity, permits rapid process and production changes.

Minimum Barrel Maintenance – is possible since no gears or other moving parts are ever below solution level.

Human Control Eliminated – because of automatic control of process times, temperature and other variables.

Precision Quality Plating – is a certainty because all operating conditions are pre-determined and automatically controlled.

Longevity and Dependability – are confirmed by the testimony of hundreds of users operating machines far beyond the end of depreciation schedules.

FEATURES OF THE NEW STEVENS-DISTRIBUTED ROTO-MERSION®
AUTOMATIC BARREL TUMBLING AND FINISHING MACHINE

What is Roto-Mersion? It is submerged automatic Roto-Finishing. The well known Roto-Finish Processes are now teamed with the new Roto-Mersion Automatic Barrel Processing Equipment. Both are backed up by years of experience and the most complete experimental testing laboratory in the country.

In checking the many important advantages to be gained from using the new Roto-Mersion Machine, be sure to weigh these features:

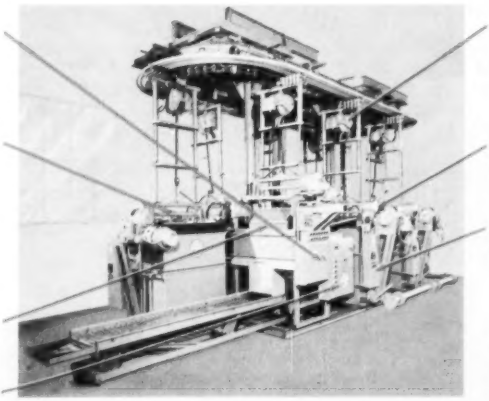
Processing Flexibility—is possible simply by changing chips, compounds and resetting of timing controls.

Greater Economy—results from ability to use compounds and solutions throughout their effective lifetimes.

Large Volume Production – is possible because of continuous automatic operation.

Continuous Production – as loading and unloading are done while processing continues in other tanks.

Full Automatic Control – can be had by using card or tape operational control systems.



Low Finishing Cost Per Piece – offers tremendous savings over standard systems and is possible because of maximum controlled production, minimum handling and savings in compound usage.

Maximum Safety – is insured for both personnel and machine through use of special controls regulating vertical and horizontal transfer.

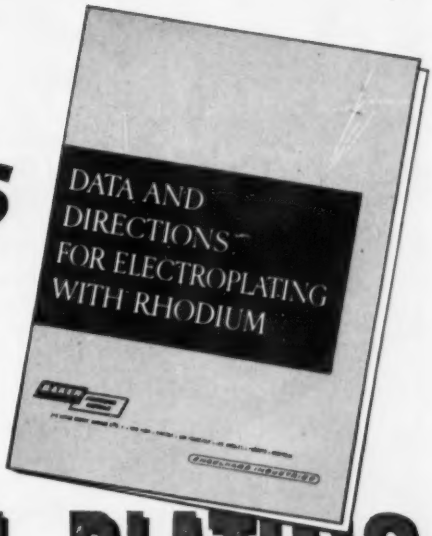
High Quality Control Standards – can be maintained because of minimum handling and absolute pre-determination of finish specifications.

One-Man Operation—is possible since one complete cycle will clean, descale—grind or burnish, rinse and rustproof parts with no intermediate handling.

FREDERIC B. STEVENS INC., 1800 18th STREET, DETROIT 16, MICHIGAN

BAKER'S

new, up-to-date, more complete handbook on



RHODIUM PLATING

*Yours **FREE** for the asking!*

Newly revised and expanded, with detailed data, technical information, and the many different applications of Rhodium Plating. Of interest to both manufacturers and electroplaters.

Send for this valuable handbook, on your company letterhead.

BAKER & COMPANY INC **PRECIOUS METALS**

113 ASTOR STREET, NEWARK 5, N. J.
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ENGELHARD INDUSTRIES

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ACME Automatics

FOR HIGH PRODUCTION at LOW COST on

POLISHING and BUFFING • DE-BURRING
WIRE BRUSHING and MICRO-FINISHING

• **Proved performance and dependability in industry for half a century**

RECOMMENDATIONS and QUOTATIONS

• *We will be pleased to receive blue prints or preferably finished and unfinished samples of the part you contemplate finishing together with detailed information on present finishing operation and production requirements. On receipt of samples and data we will offer recommendations and quotations.*

CATALOGS ON REQUEST

ROTARY
STRAIGHT LINE
SEMI-AUTOMATIC
AND SPECIAL
Polishing and Buffing
Machinery

SPECIAL MACHINERY AUTOMATIC BUFFING MACHINES

ACME *Manufacturing Co.*

1400 E. 9 MILE RD., DETROIT 20 (Ferndale) MICH.

Builders OF AUTOMATIC POLISHING AND BUFFING MACHINES FOR NEARLY HALF A CENTURY

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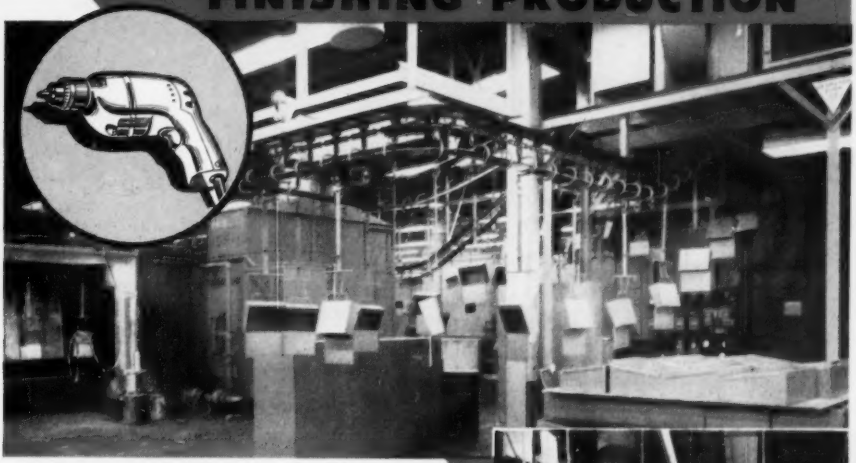
BLACK & DECKER IMPROVES FINISHING PRODUCTION



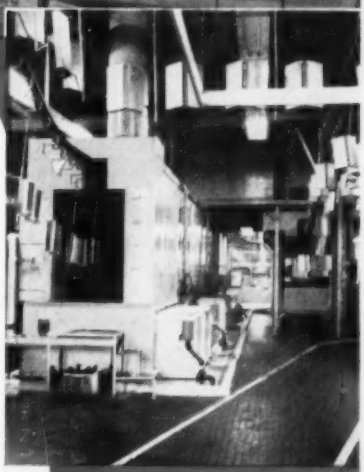
with DESPATCH System

Higher production schedules for finishing power tool parts and accessories was the objective of this internationally known manufacturer. By utilizing all space on the floor and above the floor for material transporting and processing, production capacity was doubled in the finish department.

Designers • Builders • Installers

Despatch engineers will help from the first to last stages to provide the finishing system that you need to be competitive. We can tell you of hundreds of plants in every area that have proven the competence of Despatch technicians and the benefits that Despatch engineered finishing systems have provided their production.

For more information on how we can serve your plant, write **Dept. C**



Top View: Spray booth adjoining an arrangement of over-hung finish baking ovens with feeder conveyor line.

Bottom View: Multi-stage washer and dry-off oven, conveyor supplies completely treated parts to spray booth.

DESPATCH OVEN COMPANY

Minneapolis Office: 619 S. E. 8th St.
Chicago Office: 4554 N. Broadway
Sales and Service in All Principal Cities

PIONEERS IN ENGINEERING HEAT APPLICATIONS FOR INDUSTRY

For more data circle **174** on Reader Service Card

Dr. C. Fred Gurnham
Head, Dept. of Chemical Engineering
Michigan State Univ.

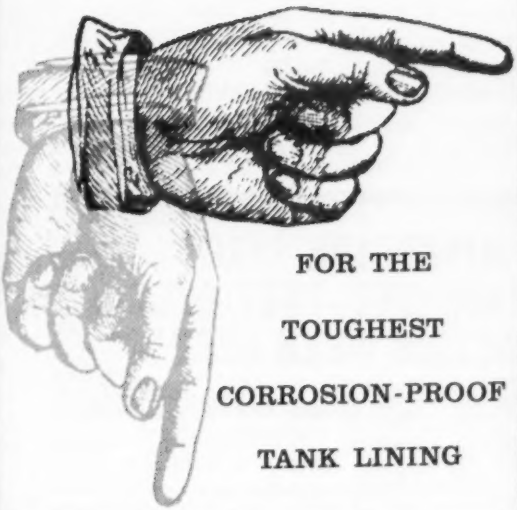
SPOTLIGHTING FINISHING PROGRESS

Metal Deposits from Gases

The basic principle of gas plating, or the deposition of metallic materials from the gas phase, is not new. The early process and its first application, however, never reached a stage of commercial development, and was, in fact, abandoned and practically forgotten for several decades. Recently, as the result of a concentrated research program, gas plating techniques have been developed that are practical and economical. The newly adopted process has been used in many pilot plants, and is about to be operated in several full production installations.

The old Mond process of gas plating for the purification of metal was developed in a research laboratory in England, about 1890. Ludwig Mond also discovered that nickel carbonyl, a gas, would decompose when brought into contact with a heated surface, and would deposit metallic nickel on the surface. This process never reached a commercial scale, but it is the forerunner of the present-day operation.

The Commonwealth Engineering Company of Ohio, Dayton, Ohio, started a research study of the Mond process about fifteen years ago. The technique quickly showed certain highly desirable features that were unique and not possible in alternate processes for metal deposition. At the same time, many difficulties appeared, and the development of a modified Mond process to the point of practical operation has required extended time and the expenditure of nearly half a million dollars.



FOR THE TOUGHEST CORROSION-PROOF TANK LINING

specify AMER-PLATE VINYL SHEET

—molded under 750 psi at 350° F. for maximum density.

Unlike other vinyl sheet linings, Amer-Plate is neither laminated nor calendered, but is molded under pressure and heat. The remarkable result is a smooth, extremely dense membrane, impervious to most plating and pickling solutions, oxidizing acids, alkalies and salt solutions. Being non-toxic and non-contaminating, it also may be safely used for lining tanks for food products.

Seams are easily heat-welded to provide a continuous impenetrable layer. Sheets are available in standard 3/32" and 3/16" thicknesses in both black and light gray.

Maximum adhesion is achieved with Amer-Plate 20Y Adhesive. This remarkable product bonds the Amer-Plate tenaciously to wood, steel and concrete surfaces so that once it has set, it is almost impossible to remove. Even in immersed temperatures as high as 160°, Amer-Plate 20Y Adhesive and Amer-Plate sheet lining remain completely unaffected. Amer-Plate membrane sheathed with acid-proof brick is an unbeatable combination for protection of high temperature pickling tanks and other critical applications.

Although Amer-Plate is resistant to most normal abrasion, if damaged, it can be repaired easily (even years later) right on the job.

Factory trained Amer-Plate applicators are located in all major cities to give you *immediate* service. You can be assured of expert workmanship—in the least amount of time. For additional technical data, please write:

Expert Application Insures Uniform Results

Electronically Tested Before Use

Ready For Years Of Dependable Service

Amercoat

CORPORATION

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4809 Firestone Blvd.
South Gate, California

Evanston, Illinois • Kenilworth, New Jersey • Jacksonville, Florida • Houston, Texas

For more data circle **175** on Reader Service Card

Theory

The principle of gas plating is simple, but it depends chiefly on the availability of certain chemical compounds. The metal which is to be deposited must exist in the form of a compound that is gaseous, and that decomposes at a temperature higher than its vaporization temperature. A considerable number of compounds meet these requirements, but such compounds have had little scientific investigation in the past because of their limited applications and the difficulty in handling them.

The gaseous metallic compound, diluted with an inert carrier gas, is contained in the plating chamber at a temperature high enough to maintain it in the gas or vapor state, but below its decomposition temperature.

The object to be plated is heated above the gas decomposition temperature, and is inserted into the plating chamber. Decomposition of gas occurs on contact with the hot surface, and metal deposits on the surface to give the desired product.

Most common of the gaseous metal compounds are the carbonyls. These are formed by direct reaction of the metals with carbon monoxide, CO. Nickel carbonyl, for example, has the chemical formula $Ni(CO)_4$, and

MINDS ARE LIKE PARACHUTES—THEY ONLY FUNCTION WHEN OPEN!
ALKALI IKE
..and in today's rapidly changing industry, open minds are essential. Even the most difficult Epoxy Resins, Lacquers and Vinels are easily defloculated with the use of--
APEX "WW" WATER WASH
Economical, long lasting and efficient granular composition, designed to reduce paint spray booth maintenance to a minimum.
Your Inquiry Will Be Appreciated.
Apex ALKALI PRODUCTS CO.
A complete line of Cleaning Compounds for the Metal Finishing Industry
Main and Rector Streets • Philadelphia 27, Pa. • IV 3-3939
SYRACUSE BOSTON DETROIT ATLANTA PITTSBURGH WEST HARTFORD
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LOOK AT THESE ADVANTAGES OF

IRIDITE® FINISHES

for

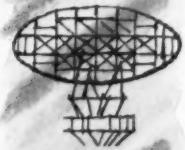
CORROSION-RESISTANCE, PAINT BASE ON ALUMINUM AND MAGNESIUM

TYPICAL APPLICATIONS

Aircraft and Missile Parts

Automobile Hardware

Outdoor Furniture



Communications Equipment

Marine Equipment

EASE OF USE—Iridite is a simple chromate conversion treatment. Fast, easy, economical. Dip, brush or spray it on at room temperature. No special equipment. No specially trained personnel.

OUTSTANDING PERFORMANCE—Integral film can't flake, chip or peel. Takes paint firmly on initial application, and the bond lasts. Even protects areas scratched in use.

LOWEST COST—You have only minimum equipment cost, no special racks, high speed operation, lower overall handling costs.

CHOICE OF APPEARANCE—Clear coatings that retain metallic lustre to dark, maximum protection coatings. Dyes available, too.

IRIDITE #14 and #14-2 (Al-Coat) for ALUMINUM—Both provide excellent corrosion protection and paint base. Iridite #14-2 is an improved product that allows greater flexibility in operation and coating thickness and produces the optimum in corrosion protection. Either coating provides corrosion resistance superior to complicated electrolytic treatments in a fraction of the time. These coatings also have low electrical resistance, aid in arc-welding, provide a good base for bonding compounds, have no effect on the dimensional stability of close-tolerance parts. Choice of appearances ranging from clear through yellow iridescence to full brown. Red, green, blue, orange or yellow dyes available.

IRIDITE #15 (Mag-Coat) for MAGNESIUM—Produces a protective, paint base film with corrosion resistance at least equal to long, high-temperature dichromate treatments in a fraction of the time and at room temperature. Appearance can be varied from light brown to dark brown and black.

APPROVED UNDER GOVERNMENT AND INDUSTRIAL SPECIFICATIONS

SEE FOR YOURSELF WHAT IRIDITE CAN DO . . . SEND SAMPLE PARTS FOR FREE PROCESSING. Also write for handy Reference File on Iridite chromate conversion coatings. Or, for immediate information, call your Allied Field Engineer. He's listed under "Plating Supplies" in your classified phone book.

ALLIED RESEARCH PRODUCTS
INCORPORATED
4004-06 E. MONUMENT STREET • BALTIMORE 5, MD.

Manufacturers of Iridite Finishes for Corrosion Protection and Paint Systems on Non-Ferrous Metals; ARP Plating Chemicals
West Coast Licensee—L. H. Butcher Co.

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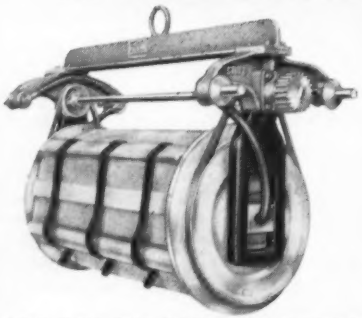
DESIGN for PRODUCTION



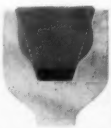
BELT DRIVEN PLATING BARREL

• Low initial cost • LOWEST possible maintenance • No cylinder gears • No cylinder bearings

Greater Current Carrying Capacity Which Lowers Plating Time and Cost

Stutz Belt Drive complete cycle Plating Barrel. This unit incorporates a cylinder of one piece Plexiglas construction, suspended and rotated by two V belts and arranged between cast steel guide frames protected with 5/16" thick special vulcanized hard rubber. For smooth barrel operation, saddle horns are located on 15" centers, 4 provided for maximum current. Cylinder door is heavily reinforced and is locked with vinyl chloride covered spring steel bung clamps. Cathode contactors are dangler type. These units made to fit most makes of plating tanks and furnished also with motor drives mounted directly on cylinder superstructure. Standard sizes 14" x 30" and 14" x 36" (I.D.). 12 additional sizes from 12" x 24" to 16" x 42" (I.D.). Standard perforations 3/32" round 3/16" centers. Patented dual hole for processing of extremely small parts available.

Specially designed counter pulleys of monel metal with deep dimples for positive grip against belt face.



This shows the belt expanding into the dimples of the driving pulleys. This action provides positive pull with no abrasion to the belt whatsoever.

Write for illustrated catalog and prices!

Serving Industry 35 years **GEO. A. STUTZ MFG. CO.**

4410 CARROLL AVE. • CHICAGO 24, ILL.

"Complete metal finishing equipment & supplies"

For more data circle **178** on Reader Service Card

is a gas at temperatures above 115 deg. F. It decomposes at about 360 deg. F. with the formation of nickel metal and carbon monoxide; the nickel deposits on the hot surface and produces, under proper conditions, a firm adherent coating.

Other metals that can be deposited from their gaseous carbonyl compounds include iron, chromium, cobalt, molybdenum, tungsten, ruthenium and certain of the precious or "noble" metals like iridium. Nitrosyl compounds, hydrides, and certain metal organics have similar properties, although these have not been as thoroughly studied as the carbonyl compounds.

The major development pioneered by Commonwealth provides a great advance over the older Mond process. It is the use of an inert or carrier gas. By this means, far greater control of the deposition can be obtained, and the ease of handling and processing of the vapors and parts is improved. While this is only one of the developments that came out of the extensive research program, it was the most important factor in making the process commercially feasible.

Compounds of certain elements, such as carbon, oxygen, nitrogen, and hydrogen, are used to modify the characteristics of the deposit. Their accidental presence is of course undesirable, but controlled additions may be utilized to provide increased hardness and other modified properties where these are wanted. Nitrides, borides, oxides, and silicides of the deposited metal can be formed by the

UNI-MULSION ®

KADMOID

HAMMERFECT

LACQUERS

SYNTHETIC ENAMELS

ALUMINUM FINISHES

THINNERS

EPOXIES

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We engineer your finishing problems

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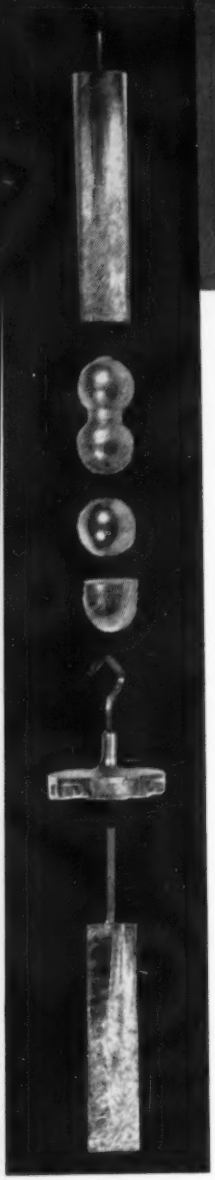


UDYLITE— A BETTER SOURCE FOR ZINC ANODES

Whatever your requirements for zinc anodes you will be assured of quick delivery from any of eleven Udylite nation-wide stock points.

Udylite zinc anodes are made of virgin metal and every step of manufacture is controlled. You can always depend on Udylite anode quality and purity. Udylite also supplies anodes of zinc aluminum and other zinc alloys.

There are a variety of shapes, too. Balls, Twin Balls, Unodes, Ovals and Flats. The Ovals and Flats are furnished with several hook combinations. Udylite will also furnish special shapes that are cast to your order.

Zinc Ball Anodes, Twin Ball Anodes and Unodes are available for immediate shipment from Detroit, Chicago, Rockford, Grand Rapids, Milwaukee, Cleveland, Atlanta, New York, Philadelphia, Indianapolis and Puerto Rico. Ball Anodes and Unodes are shipped in 250 lb. nonreturnable containers. Oval and Flat anodes are palletized.

Udylite's nearby stock points mean fast delivery so that your production is uninterrupted. Start today to make Udylite your single source for zinc anodes.

THE Udylite CORPORATION
DETROIT 11, MICHIGAN

WORLD'S LARGEST PLATING SUPPLIER

addition of appropriate compounds to the gas stream.

Variables

Metal deposits of considerable thickness can be deposited, and at a high rate. A major variable that can be used to control the deposition is the concentration of the nickel carbonyl or other metal compound in the carrier gas. The rate of flow of the plating atmosphere affects this concentration, and the degree of turbulence in the chamber affects the local concentrations. A second important control variable is the temperature of the object being plated. Adjustment of these variables permits regulation of the speed of deposition and thickness of plate, and provides some control of the plate properties of density and ductility.

Operation

A typical product that might be gas plated by the Commonwealth Engineering process is a gasoline fuel delivery nozzle. Nozzles can be nickel plated from the gas phase, at a rate of a 0.001-inch deposit in three to five seconds.

The nozzles are conveyorized before en-

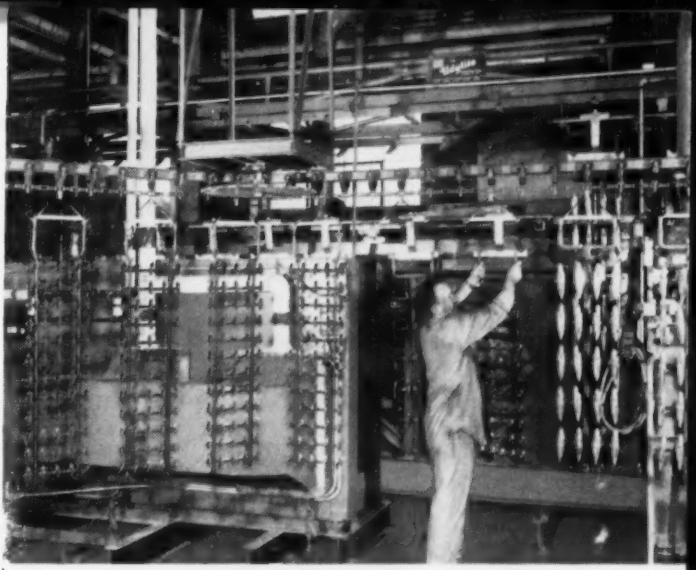
For more data circle 180 on Reader Service Card

tering the preparatory and plating areas. Cleanliness of the metal surface is necessary, as it is for electroplated parts. Frequently the desired degree of surface cleanliness can be obtained by initial heat treatment in a reducing-atmosphere furnace.

Conveyorized nozzles, after cleaning, pass first through a gas lock into the plating zone. The gas lock is essential in order to maintain the proper plating atmosphere; it prevents escape of the metal carbonyl compound and introduction of air into the process zone. While the work is in the gas lock, it is brought up to the necessary temperature by any suitable heating means, such as dielectric, induction, or radiation heating.

The preheated nozzles pass from the gas lock into the plating atmosphere. The rate of movement is controlled to provide a suitable residence time in the plating chamber. This time depends on the plate thickness and characteristics desired, and is generally less than 30 seconds.

For more data circle **181** on Reader Service Card



QUALITY IMPROVED—PRODUCTION INCREASED WITH UDYLITE PROCESSES AND EQUIPMENT

In the manufacture of rear view automobile mirrors by Yankee Metal Products Corporation of Norwalk, Connecticut, a variety of die cast parts are used. All of these die cast parts are copper, nickel and chrome plated on the Udylite Full Automatic Plating Machine. Shape and sizes of these parts vary considerably.

The Udylite Full Automatic handles the complete processing of the parts from the bare die castings to a finish ready for final assembly. Its operation has provided perfect precision, a doubled capacity and a minimum of rejects.

Udylite Bright Nickel has played an important part in the perfect coverage of these die castings. With the chrome overlay, Udylite Bright Nickel has provided not only the glistening finish demanded for this luxurious line, but also the guaranteed protection for these accessories which are constantly subjected to attack by the elements.

Hand in hand, Udylite equipment and processes are solving many plating problems. Providing sales appeal finishes—plated protection—multiplied production. Find out how you can use these same advantages.

THE Udylite CORPORATION
DETROIT 11, MICHIGAN

WORLD'S LARGEST PLATING SUPPLIER

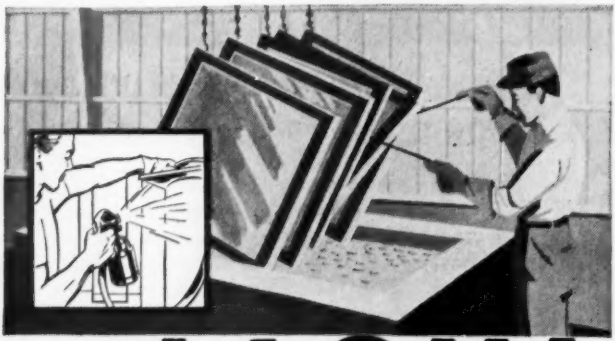
Other variables that must be regulated for control of the deposit are the operation temperature and the plating gas composition.

The plated parts leave the plating zone through a second gas lock. They may be cooled at this point, in order to facilitate manual handling at the unloading station and in subsequent operations.

It is essential that the plating chamber as a whole be kept below the gas decomposition temperature. If a higher temperature existed, deposition would occur on the chamber walls and also as powdered metal "snow" in the atmosphere. Insertion of heated objects into the chamber tends to raise the temperature toward this critical degree, but the situation is readily controlled by sweeping the vapor and carrier gas through the chamber at a reasonable velocity. The excess gas can either be recycled or the metal compound can be recovered by condensation and the spent gas vented to a burner.

The plating gas can be prepared by passing vaporized metallic compound into a carburetor where it is mixed in a definite ratio with carrier gas. The carrier may be carbon monoxide, nitrogen, or any other suitable inert gas. Metal compounds that are

preserve and protect chemically-cleaned and electroplated surfaces by dip or spray



WITH LAQUA

- **LAQUA** displaces water from a surface and at the same time deposits a thin protective film thereon. It eliminates the drying operation after plating.
- **LAQUA** does not interfere with electrical contacts.
- **LAQUA**-coated metals can be spot welded . . . it improves soldering operations.
- **LAQUA** prevents oxidation, sulfer discoloration and fingerprinting of parts during storing and handling.
- **LAQUA** resists salt spray and humidity.
- **LAQUA** can be recoated with almost all finishes.

Write for Free Sample and Complete Catalog.

FIDELITY CHEMICAL PRODUCTS CORP.

472 Frelinghuysen Avenue, Newark, New Jersey

For more data circle **182** on Reader Service Card

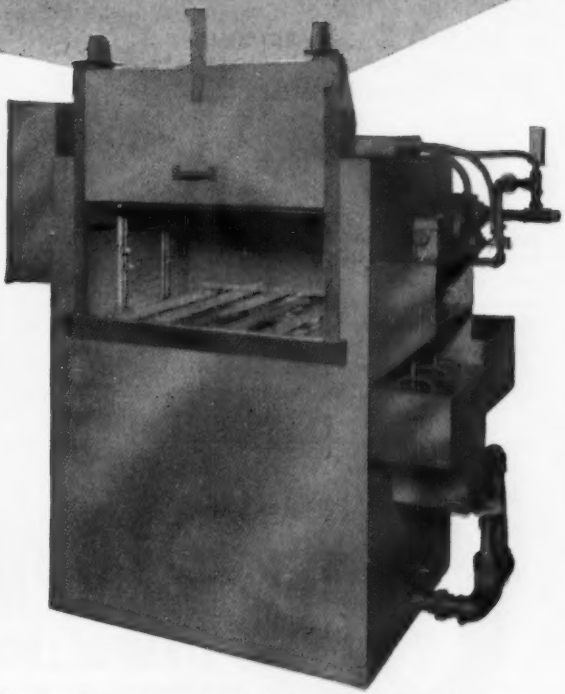
Designed for the SMALL PLANT . . .

New RANSOMATIC Saves Time, Money, Replaces Inadequate Cleaning Methods

HANDLES 40 BASKETS PER HOUR

FITS IN 10 SQUARE FEET

PERFECT FOR FRAGILE PARTS



Eliminate the bottlenecks and high costs that go with outdated metal cleaning methods. Replace still tanks, vapor cleaning or other inefficient operations with a new RANSOMATIC Cabinet Type Cleaning Machine. Widely adjustable for any desired washing-rinsing-drying cycle, this machine is used by small plants or for departmental cleaning in large plants. It cleans up to 40 baskets of parts per hour . . . *Automatically!*

Fast, efficient, low-cost cleaning is as simple as this: Load baskets or larger individual parts into machine and shut door. That starts the machine. At the end of pre-set cycle, door opens and parts are ready for unloading!

PUT YOUR METAL CLEANING ON AN AUTOMATIC BASIS! FOR COMPLETE DETAILS, write to: Ransohoff, Inc., 610 North Fifth Street, Hamilton, Ohio

Ransohoff *An old name...the newest ideas*

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not sufficiently volatile to be distilled in this manner, or compounds that decompose at temperatures close to their boiling points, can be vaporized or sublimed directly into the carrier gas at temperatures considerably below their boiling points.

★ ★ ★

A new use for anodized aluminum is being developed by Reynolds Metals Co., Louisville, Ky. Development efforts are in cooperation with automobile manufacturers, and are aimed at using aluminum as a conductor in coils for automobile electrical systems. The aluminum strip so used is self-insulated by an anodic film. Interest has been expressed in using the anodized aluminum strip in other parts of automobile electrical systems as well. Advantages claimed for this type of material's use for a conductor include ease of winding; reduction of voids and reduction of thickness of insulation; reduction of layer to layer voltages; better heat transferance characteristics and elimination of many hot spot temperatures.

★ ★ ★

A BUMPER EVERY THREE SECONDS

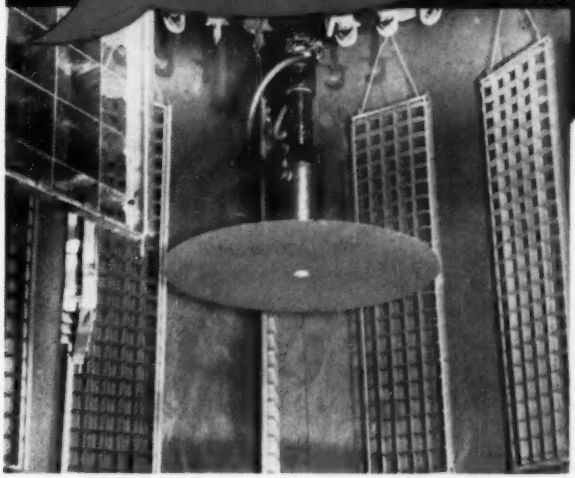
The largest automatic plating facility in the world, occupying an area equal to three football fields, is now in full operation in the Detroit area of Michigan. The plant turns out a gleaming automobile bumper every three seconds at peak production — enough to cover four acres a day with plated metal. The plating tanks, in which the bumpers are given successive coatings of copper, nickel and chromium, hold a volume equivalent to that of 109 railroad tank cars.

For more data circle **184** on Reader Service Card

What d'ya mean . . .

You're too little to use RANSBURG Electrostatic Spray Painting?

If your production justifies conveyorized painting, chances are RANSBURG NO. 2 PROCESS can do YOUR painting job better . . . at less cost.



RANSBURG NO. 2 PROCESS *accounts for a 50% savings in paint costs in finishing fluorescent lighting fixture parts for* MELROSE LIGHTING COMPANY, *Philadelphia. Melrose is a small plant employing only 25 people.*

Not only big industrial manufacturers like G. E. . . . Whirlpool-Seeger . . . Westinghouse and Republic Steel, but little plants, too, are using RANSBURG NO. 2 PROCESS in their finishing departments to help keep mounting manufacturing costs in line.

A typical example is Melrose Lighting Company, Philadelphia. They make industrial fluorescent lighting fixtures and employ only 25 people.

Formerly, according to F. Homer Hagaman, owner Melrose Lighting, when their fixture louvres were hand sprayed, they painted only 70 pieces per hour. Now, with Ransburg Electro-Spray, he reports they get over 200 per hour.

Production on the fixture end parts jumped from 400 pieces per hour by hand spray to over 2000 an hour electrostatically—a 400% increase!

Along with improving quality of the work, stepping up production, and cutting labor costs, Melrose is enjoying a 50% paint savings.

Let us show you how Ransburg No. 2 Process can lower YOUR painting costs. Write for our new No. 2 Process brochure on electrostatic spray painting. Numerous production-line examples show how other manufacturers are cutting finishing costs . . . increasing production . . . and improving the uniformity and quality of their work with Ransburg equipment.

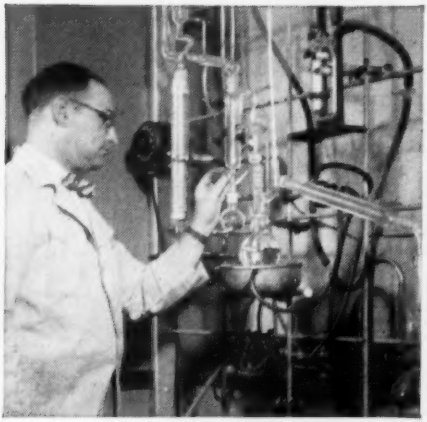
Ransburg **ELECTRO-COATING CORP.**

Indianapolis 7, Indiana

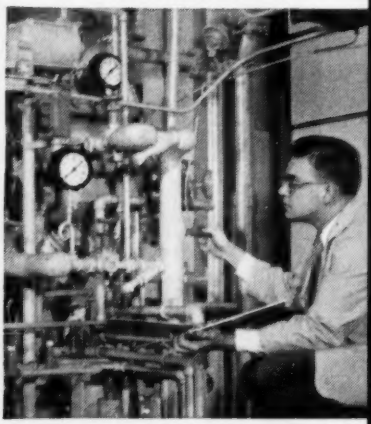
RANSBURG

For more data circle 185 on Reader Service Card

Use the skill an

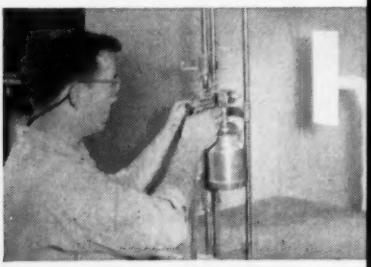


• **Often one of the first steps** in solving a special coating problem is synthesis of a new compound or a new resin.

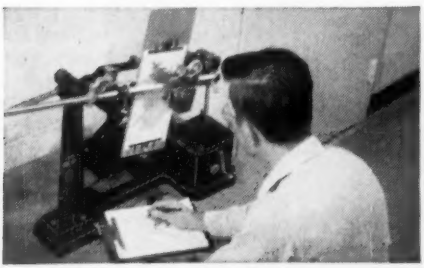


• **Processes for producing** new chemi compositions used in paint making are veloped in a special pilot plant.

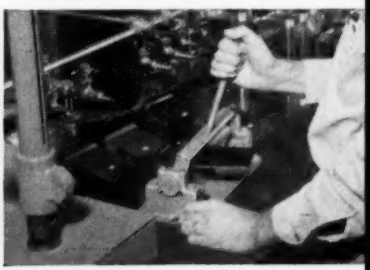
• **A newly formulated** finish is ground on a laboratory three-roll mill to test minute particle size and dispersion.



• **Automatic equipment** is used to sp finish on test panels. This provides unif coverage of finish on these panels.



• **Film made** with new compound and synthetic resins are carefully tested in special equipment for tensile strength.



• **A chemist checks** the impact resista and flexibility of clear films of the speci formulated resins.

know-how of Pittsburgh's

415 Finishes Technologists

They'll help you develop better finishes for today's products . . . special finishes for tomorrow's goods —without adding to your payroll!

THE CONSTANT STREAM of new and improved products brings with it demands for finishes with more exacting requirements than ever before. Some of these can be solved with existing formulations. Others require completely new chemical compositions to provide new standards in adhesion, toughness and resistance to corrosion.

● **To help you get finishes** that meet your most critical specifications, Pittsburgh now offers you the most modern facilities for fundamental and applied research in the paint industry. In its new Paint Research Center at Springdale, Pa., and in the development laboratories of its 11 paint plants, Pittsburgh maintains a staff of 415 chemists, engineers and technicians. Here new materials, products, processes and application techniques are combined in a program of progress to maintain Pittsburgh's traditional leadership in the field of surface coatings.

● **In addition** to discovering new and better products, these research facilities are available for the solution of any unusual finishing problems. Why not utilize this manpower and these facilities to get better finishes for your products—without adding to your payroll? Write, wire or call Pittsburgh Plate Glass Company, Industrial Finishes Division, 1 Gateway Center, Pittsburgh, Pa.

PPG **PITTSBURGH PAINTS**

PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS • FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

For more data circle **186** on Reader Service Card

Job Shop Uses Electrostatic Spray

By JACK H. GOODYEAR
Vice President
J. W. Rex Co.
Lansdale, Pa.

The Del-Val Finishers Division of J. W. Rex Co., Lansdale, Pa., specializes in custom industrial finishing of a wide variety of work on a contract basis for firms scattered throughout the booming Delaware Valley.

Del-Val Finishers maintains complete facilities for spraying and baking all types of paint, enamel and lacquer. As a job shop, the company handles a wide range of sizes and shapes. Work ranges from flat, sheet steel, eventually to be formed into barbecue trays, to odd-shaped, dimpled, hollowed-out parts, to be used as pedestals for office desks.

The most unusual aspect of finishing operations at Del-Val Finishers is the electrostatic spraying installation which this job shop is using successfully to finish all types of work. This shop is one of the few job shops in the country operating a continuous conveyorized automatic electrostatic finishing setup.

Let's follow the progress of a typical part being finished in this system—a flat steel sheet that will eventually be formed into a barbecue tray represents a good example. Specifications dictate that these 14 by 19-inch sheets must be cleaned and phosphatized and then fin-

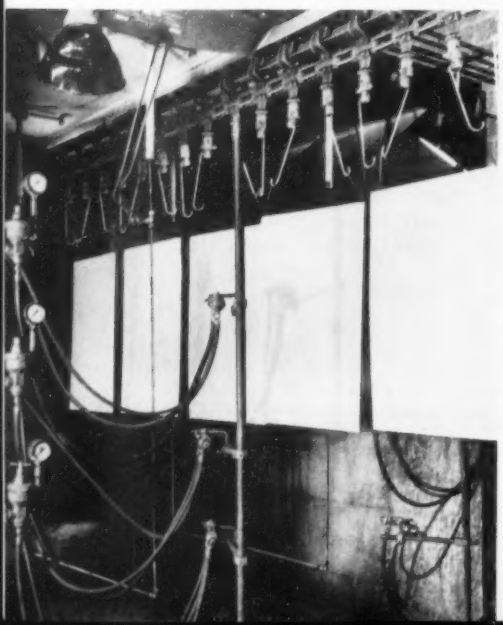


Fig. 1—Flat steel sheets that will be formed into barbecue trays after finishing are painted with electrostatic spray system. Six Binks No. 20 automatic spray guns are used. Ransburg No. 1—130,000-volt pack provides charge.

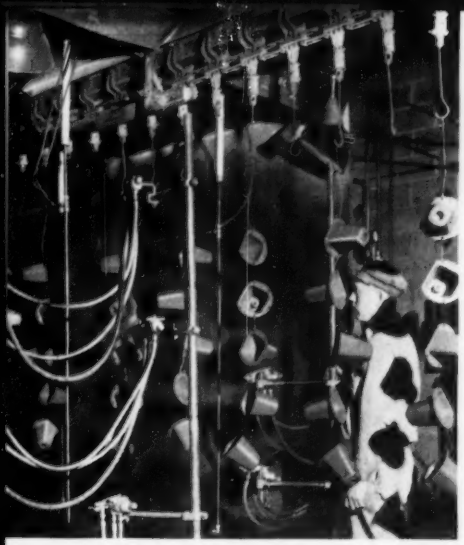


Fig. 2—Cup-shaped parts for desk pedestals rotate as they move through electrostatic spray area, so as to prime coat all sides and recesses with a minimum of hand spray touch-up.

ished with a white alkyd baking enamel (full coat on one side, mist coat on the other side). This finish must withstand a 90-degree bend with a sharp radius, as the sheets are formed into trays *after* finishing. The finish has to be tough and have excellent adhesion to withstand such a severe test.

"Round Trip" Layout

The Del-Val Finishers finishing line is arranged so that work is hung on the conveyor and removed at the same point, after finishing.

Parts are hung on the conveyor from one to five high, depending upon the type of work being finished. The conveyor takes the parts through a five-stage, gas-heated washer installed by Cincinnati Cleaning & Finishing Machinery Co. Here parts are cleaned and phosphatized to increase corrosion resistance and provide a base to which the paint will adhere better. A dry-off oven at this point removes all moisture from the products being readied for painting, completing metal preparation operations.

Electrostatic Painting

The conveyor then carries parts through a hand spray booth, in which parts are reinforced on areas that are hard to cover electrostatically. The

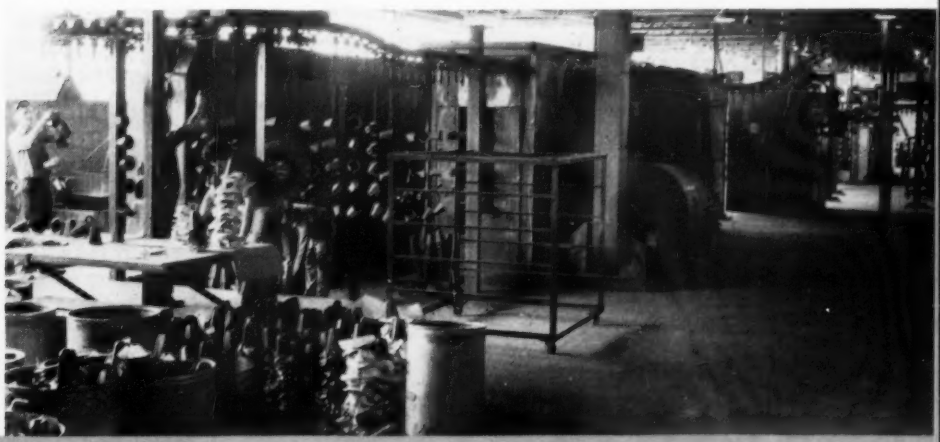


Fig. 3—Parts are unloaded at original loading point after being conveyed through continuous finishing process. (Photographs are courtesy the Del-Val Finishers Division of J. W. Rex Co.)

next stage in the process is electrostatic spraying. This is performed in a booth 10 by 7 by 8 feet deep equipped with six pre-aimed Binks No. 20 automatic spray guns and a Ransburg No. 1 (130,000 v.) power pack. The company has found that this combination offers the flexibility and versatility needed to finish such a wide variety of parts. Charged paint particles issuing from the guns seek the grounded work as though magnetized. Guns are placed in positions at angles calculated to give complete coverage to all sides of the parts being sprayed.

Baking in a 30-foot oven that can be pre-set for any temperature from 225 to 375 deg. F. completes the finishing process. Proper time and temperature for baking the work are determined prior to production. Time in the oven is controlled by regulating conveyor speed. The cycle completed, parts are unracked and packed for shipment back to the customer.

The total length of the conveyor for this system is about 300 feet. The installation is capable of producing up to 2,500 pieces per day, with an average run of about 1,500 units a day.

In addition to the obvious advantage of the high production of which this system is capable, the company is also pleased with the quality of work it produces. It has been found to give uniform paint coverage, an even mil

Testing For Causes of Rough Deposits?

9. Run a plating test ... By using a testing procedure it will be possible to determine chemical adjustment, addition agent control and bath treatment necessary to return the bath to normal plating. Such testing may also indicate the need for greater filtering capacity or for continuous filtering. If filtering is required on a laboratory scale to obtain satisfactory test results then filtering is required to obtain quality production plating.

Filtering Methods

... method for filtering plating baths with a

FREE! Your guide to better plating

This technical article — "The Use of Filters in Electroplating" — written especially for you by Mr. J. B. Mohler, Finishing Consultant is available to you for the asking. Write for your free complimentary copy today.

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For more data circle **187** on Reader Service Card

SANDER NEWS

New Orbital Model

•

Fast Material Removal

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Wet or Dry Sanding

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Sturdy Sundstrand Construction

The word is out! This new Sundstrand Air Sander . . . the *only* orbital sander with built-in water attachment for wet sanding—has had a sensational reception. It's fast (6000 cycles a minute) . . . convenient (palm lever controls both air and water) . . . minimizes vibration, reduces fatigue (counterbalanced precision manufacture) . . . small, compact (easy to use on small or large areas) . . . sands up to edges and moldings (doesn't bounce off). Yet it needs only 6 to 9 cfm of air. See your local supplier, or write for new bulletin. Ask about Sundstrand Straight-Line Sanders for finer finishes, too . . . complete, varied line available!

SUNDSTRAND

SUNDSTRAND

a name to remember in **AIR SANDERS**

Pneumatic Division, Sundstrand Machine Tool Co., Rockford, Illinois

For more data circle **188** on Reader Service Card

thickness over the entire piece, and good appearance with economy of paint consumption.

For more data circle **1** on Reader Service Card

★ ★ ★

Die Cut Tape Used for Making Inscriptions

The Herman J. Wolf Company, a Philadelphia, Pa., manufacturer of religious articles, is now using custom die-cut stencils to place inscriptions on metal articles, an operation formerly done by hand engraving.

Seeking a way to cut costs while maintaining quality, Wolf contacted Gleicher Manufacturing Corp., Newark, N. J., manufacturer of die-cut pressure sensitive tape. A special tape was developed, the use of which eliminated hand engraving.

How It's Done

The technique in the finishing operation is as follows: the surface of the piece is prepared by cleaning and polishing, which is confined to the general design area. The die-cut pressure sensitive tape is applied and rolled on with a squeegee to ensure adhesion of the tape around the edges. Once the tape is securely in place the piece is buffed to a satin finish with a cloth wheel rotating at slow speed, using an abrasive compound. When the tape is removed, the letters have a bright sheen, in contrast to the buffed satin surface of the remainder of the piece. The die-cut tape is thin enough to make the outline of the letters clean and sharp and at the same time has sufficient shear adhesion and tear strength to withstand the abrasion of the wheel. The final operation is cleaning and lacquering the piece.

For more data circle **2** on Reader Service Card

Die cut tape is applied to surface of this article after general area of the design has been polished bright. Piece is then buffed to a satin finish. Removing the tape leaves a brightly polished design in contrast to the satin finished surface of the remainder of the surface. (Photo courtesy Gleicher Mfg. Corp.)

★ ★ ★

Mirror Maker Solves Nickel Plating Problem

A big problem in making automobile side-view mirrors is how to "draw" or fit the edge of the frame around the mirror without cracking the nickel finish with which the frame has been coated.

Yankee Metal Products of Norwalk, Conn., manufacturer of "Pace Setter" mirrors, has solved the problem by bright nickel plating the frames, using the Nickel-Lume process. Developed

For more data on advertisement on opposite page circle **189** on Reader Service Card ——→

PIONEERING QUALITY INDUSTRIAL FINISHES SINCE 1928

QUALITY–

"Excellence of character; natural superiority."

(Webster's New International Dictionary)

CLINTON Quality conforms to this definition–

TRY US AND SEE!

Customer Service is Our No. 1 Concern

THE CLINTON COMPANY

1210 ELSTON AVE. • CHICAGO 22, ILL.

Practical Applications . . .

by Hanson-Van Winkle-Munning Co., Matawan, N. J., this nickel plate has proven to have good ductility and controlled stress — characteristics which minimize problems of crazing, cracking and brittleness often encountered by mirror manufacturers.

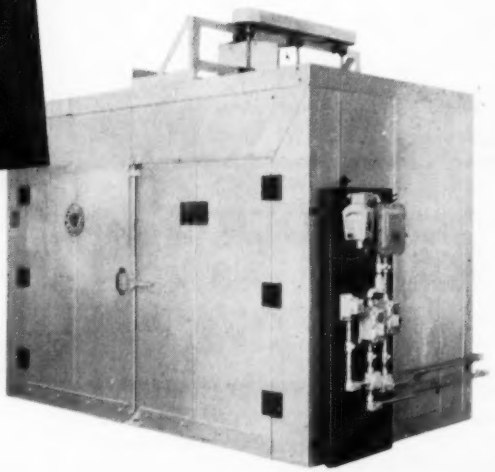
Use of this ductile nickel coating has also permitted the company to use a heavier nickel coating to improve corrosion resistance without danger of cracking.

The mirror frames are stamped from brass sheets, then buffed. Then they are nickel plated, using rocker arm cathode agitation. Gasket material is applied to the mirror back to hold the mirror in place. Back and mirror are placed on a spinning frame, and the mirror back is folded around the edge of the mirror.

Yankee Metal's Pacesetter Mirror, finished with H-VW-M's Nickel-Lume bright nickel process. Mirror at left shows the drawn edge of the frame that holds mirror in place. Complete unit, ready for mounting, is shown at right. (Photo courtesy Hanson-Van Winkle-Munning Co.)

In addition to the high ductility of the Nickel-Lume process, it is reported

ROCKWELL
Recirculating
OVENS



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- Batch or Conveyor Types
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Write for Catalog

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For more data circle **190** on Reader Service Card

Pre-cleaning for Automatic Plating Lines

How Free-Rinse Process

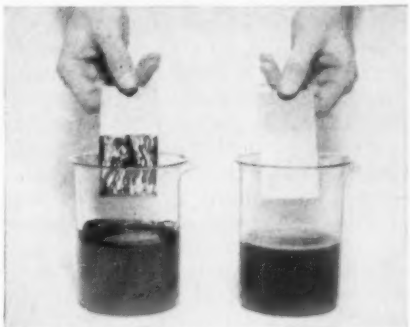
CUTS COSTLY REJECTS

Automatic plating lines put unusually heavy demands on cleaning materials. Cleaners that lack fast wetting action can't do a thorough cleaning job within the fixed limits of the automatic cycle. Cleaners that lack free-rinsing properties will cause "drag-out" that contaminates other tanks and causes rejects. Many cleaners lack capacity to hold large amounts of contamination, which means frequent shutdowns of the line to dump solution. Unstable cleaners cause constant adjustment and titration problems.

To meet the strict demands for cleaning in automatic lines, The Diversey Corporation has developed a series of cleaners that eliminate these serious problems and produce far superior results at lower overall costs. The Diversey process includes the following recommended cleaners for the important steps in the cleaning cycle:

For pre-soaking: Diversey #909 Heavy Duty Cleaner. Advantages—faster wetting action which means that cleaning starts sooner; longer solution life due to high capacity for holding contamination; free-draining and rinsing, eliminating problems of "drag-out"; non-caustic, safe to handle.

For electro-cleaning: Diversey #12 Electro-Cleaner. Advantages—faster acting due to excellent current-carrying capacity; controls foaming, thus reducing explosion danger caused by build-up of gas under heavy foam blankets.



WHY YOU MAY BE GETTING TOO MANY REJECTS. *Difference in rinsing properties of two cleaners is clearly shown above. Beaker at left contains a conventional cleaner in general use. Beaker at right contains a solution of Diversey 909 Heavy Duty Cleaner. Identical amounts of grease and dirt are added to each beaker. Notice how soil clings to metal strip inserted in conventional cleaner, while work dipped in Diversey 909 at right comes out clean, free of waterbreaks.*

For spray-cleaning: Diversey #519 Spray Cleaner. Advantages—faster wetting action, better emulsification; long solution life; free rinsing without waterbreaks; non-caustic.

Your nearby Diversey D-Man will be glad to demonstrate how the Diversey process will give you (a) superior cleaning (b) easier and more effective control due to the uniformity of solutions, (c) longer runs without shutdowns. For free illustrated brochures on Diversey metal cleaners, write today on your letterhead to Metal Industries Department, The Diversey Corporation, 1820 Roscoe St., Chicago 13, Illinois.

For more data circle **191** on Reader Service Card ADV.

to produce "full" brightness and to have good plating speed.
For more data circle **3** on Reader Service Card

★ ★ ★

Silicone Finish on a Hot Hose

A flexible pipe used to connect the exhaust manifold to the tail pipe of the Continental Mark II automobile presents a particularly difficult finishing problem. Requirements for the finish on this particular part are so tough partly because the temperatures just beyond the exhaust manifold are extremely high; to make matters worse this is a flexible coupling and thus must withstand bending and abrasion without chipping or loss of adhesion; and specifications state that this finish must retain good appearance and gloss.

Silhouette drawing shows flexible metal hose connecting exhaust manifold and tail pipe of Continental Mark II automobile. Sicon silicone protective coating is used to finish this part. (Photo courtesy Midland Industrial Finishes.)

The finish adopted for this special application is Sicon, a silicone-based heat-resistant finish made by Midland Industrial Finishes Co., Waukegan, Ill. It had been tested previously for the 1952 Lincoln. The silicone finish withstood a 24-hour temperature test at a temperature in excess of 1000 deg.

Lustre Black
OXIDE COATING for IRON and STEEL

LUSTRE BLACK
is a fast-acting, low-cost method to impart a dense, rust-resisting black oxide finish. Ideal for wrought iron furniture, office equipment parts, camera parts, hardware, tools, ordnance parts and wire specialty products. Excellent bonding properties for paints and enamels. Simple one-bath operation, aqueous solution requires no electric current. Operates at 285-300° F. Samples treated free at Detroit.

Inquiries invited.

Standard Research, Inc.
464 Grand Avenue, New Haven
14341 Schaefer Highway, Detroit
4700 East 48th Street,
Los Angeles

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VISCOSITY*

*"That property of a body in virtue of which, when flow occurs inside it, forces arise in such a direction as to oppose the flow." — *Webster*

BROOKFIELD*

*Pioneer and world leader in the development and manufacture of precision viscosity instruments. Today, Brookfield is universally accepted as the World's *Standard for Viscosity Measurement and Control!*

AND YOU*

*A scientist interested in easy, accurate viscosity measurement or control for laboratory or production processes. You'll be happy to learn, too, that more than 300 technical articles and references based on Brookfield and viscosity measurement of 200 different materials have been published in the past ten years. You are welcome to any of this data which may pertain to viscosity measurement control problems you have.

Brookfield know how is yours for the asking without obligation.

Brookfield
ENGINEERING LABORATORIES
INCORPORATED

STOUGHTON 11, MASSACHUSETTS

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F., which is substantially in excess of normal operating temperatures. Recent additional performance tests proved the adequacy of this heat-resistant finish for application to the Continental Mark II.

For more data circle **4** on Reader Service Card

★ ★ ★

Infrared Speeds Lift Truck Production

Completely assembled and painted lift trucks and tractors are now being force-dried in an infrared oven at the Harvey, Illinois, plant of Allis-Chalmers. Air drying the painted trucks was a time-consuming process in this plant, often causing production bottlenecks in the finishing department.

The automatic radiant heat oven now being used, a product of Fostoria Pressed Steel Corp., Fostoria, Ohio, has trimmed this time to ten minutes. The trucks and tractors moving through the baking oven are "ready to go"—they even have a full gas tank—all that remains to be done after baking is to mount the seat assembly.

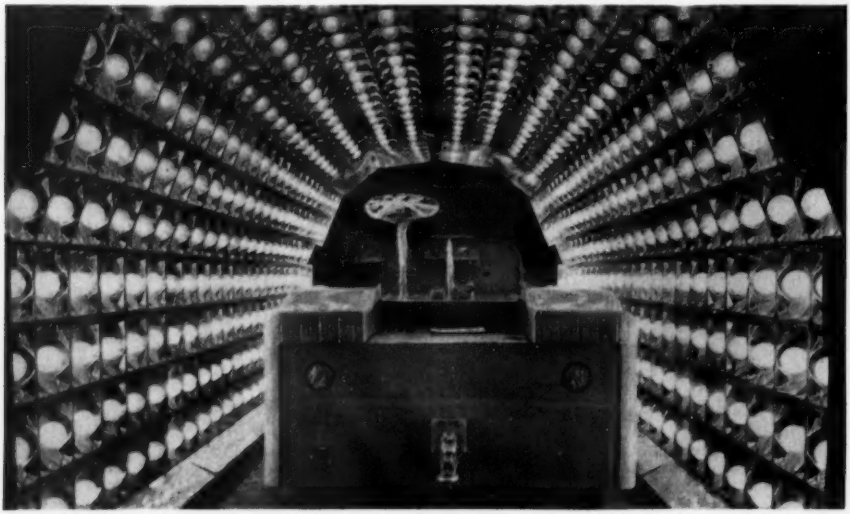
The drying oven installed at Allis-Chalmers is 18 feet, four inches long, uses G-30 lamps with a total connected load of 100 kw. Company officials say that the oven is easily controlled, helps to produce a top-quality finish in minimum time.

For more data circle **5** on Reader Service Card

★ ★ ★

Special Hose Aids Airless Spray

A specially-engineered hose assembly of fluorocarbon resin jacketed in stainless steel wire braid has overcome a difficult problem in developing equipment for the airless system of



Allis Chalmers' infrared oven: speedy drying. (Photo courtesy Fostoria Pressed Steel Corp.)

Clean up fast

with "LIQUID ENVELOPE"

the original, firesafe, strippable Spray-Booth Coating

Spray-booth cleaning costs are at rock-bottom when you spray walls with "LIQUID ENVELOPE". Over-spray peels off in a jiffy, cutting heavy over-time and wasteful "downtime".

"LIQUID ENVELOPE" opaque white pigment improves illumination. Contains no toxic chlorinated solvents. Will not corrode walls or ducts. Dry film will not burn or support combustion.

New Users: Order 5-gallon test sample at drum-lot price from nearest dealer.

BETTER FINISHES & COATINGS, INC.

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Tri State Spray Equipment Co., Omaha, Neb.; Rock Island, Ill.

In Europe:
Jenson & Nicholson, Ltd., London, Eng.

For more data circle 193 on Reader Service Card

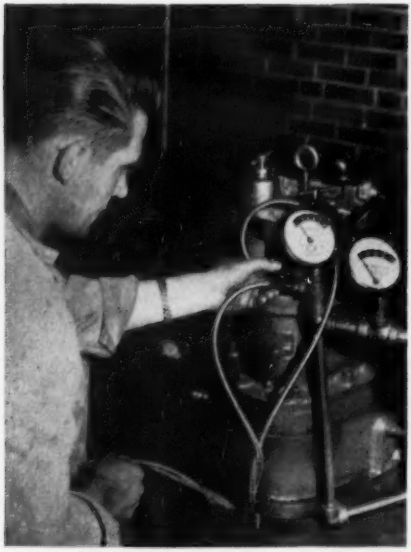

Fig. 1—Heart of airless spray system is this pumping unit. Pressures from 300 to 1200 p.s.i. are used to force coating materials through the Fluoroflex-T hoses shown above.

Fig. 2—Closeup: airless spray gun in action.

spray-coating paints, lacquers and other finishing materials.

The airless spray equipment, made by Bede Products Corporation, Amherst, Ohio, uses pressures of 500-600 p.s.i. and temperatures of 160-180 deg. F. to hold paint solvents near the boiling point. When these solvents in paints and lacquers are released to the atmosphere, they atomize instantly.

Because of the high temperatures and pressures involved, the hose used to carry hot, pressurized solvents from the heating system to the spray gun is an important consideration. A special hose assembly, known as Fluoroflex-T, a product of the Resistoflex Corporation, Roseland, N. J., was installed following a search for a satisfactory hose. Following two years' operation, Bede engineers report that carrying hot paint under pressure is no longer a problem.

The hose assembly consists of a specially compounded, extruded Teflon resin tube equipped with stainless steel jacket and three-piece steel couplings. The tube, which is inert to solvents used in paints and lacquers, is tested for temperatures up to 500 deg. F. and pressures up to 3,000 p.s.i. The stainless steel jacket resists fatigue and provides a positive blow-off proof anchor for the couplings.

Airless System Design

The airless spraying system consists of a piston pumping system, paint heating system, hose and spray gun, integrated into a portable, three-part unit. A high-pressure pump siphons material from the paint container and sends it at selected pressures to the heater. Fluid pressures range from 300 p.s.i. for coating oils and lubricants to 1,200 p.s.i. for plastisols; most paints require 500-600 p.s.i.

At generated pressure the material

For more data on advertisement on opposite page circle **194** on Reader Service Card——————→

OFHC® COPPER

ONLY AMCO MAKES IT

And anodes made of OFHC copper are produced only by AMCO.

OFHC stands for Oxygen Free High Conductivity copper. OFHC copper is the only oxygen-excluded copper—it is not deoxidized copper.

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more usable copper per anode •
smoother finishes •
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Metal Sales Department
THE AMERICAN METAL COMPANY, LTD.
61 Broadway, New York 6, N. Y.

passes through the 4,000-watt heater, which elevates and controls the temperature to any predetermined value. For lacquers and vinyls, only 140 deg. F. is necessary; solid waxes and resins may require as much as 300 deg. F.

Heat is the key to the airless process. It lowers the viscosity of the material to easily-atomized, watery consistency and builds up vapor pressure. Heated material is circulated at a rate faster than rate of use, assuring a constant supply of hot material to the spray gun.

Materials being sprayed are released through a nozzle (usually manufactured of synthetic sapphire or tungsten carbide) which provides the required flow rate and spray angle. The gun may be located as much as 100 feet from the pump, using ¼-inch i.d. Fluoroflex-T hose as a flexible connection.

A prime advantage of the high temperature airless system is minimization of overspray: there is no rebound of paint, even when spraying into trapped areas. Paint particles hit the surface hot in this system, resulting in good bond and adhesion.

The airless system is useful in applying plastisols and other "problem" materials.

For more data circle **6** on Reader Service Card

★ ★ ★

NICKEL CAPACITY INCREASING

Since 1949, prior to the Korean conflict, the free world production capacity for nickel has been increasing at a substantial rate and is expected to continue to increase for the next several years. From an annual production of 267,000,000 in 1949 it advanced to approximately 390,000,000 pounds in 1954 and is expected to increase to at least 450,000,000 pounds by 1958.

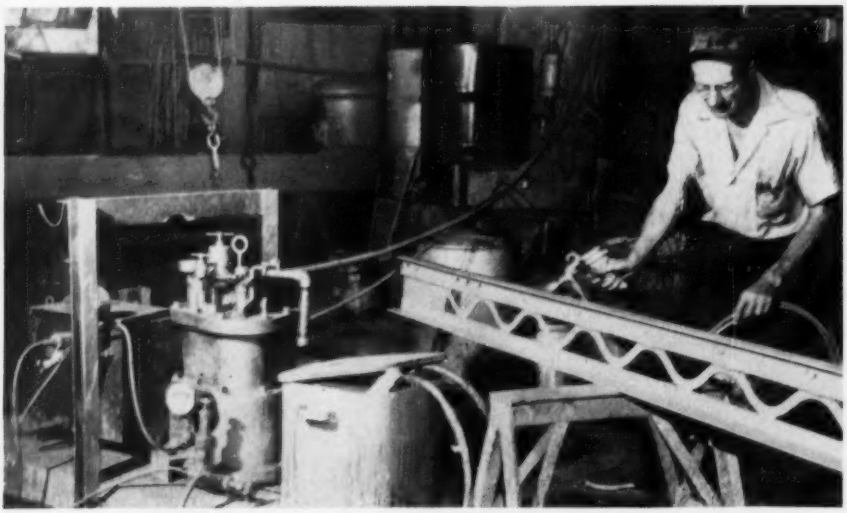


Fig. 3—Overspray is reduced by the airless spray system, thus this portable unit can be used to spray even in open areas, without a booth. (Photos courtesy Resistoflex Corporation.).

Stripping power of caustic solution provides clean surface for this smooth cadmium finish.

STRIPPED CLEAN FOR LESS WITH DOW CAUSTIC FLAKE

Easy to get, easy to use:

anhydrous caustic flake

keeps costs low, alkalinity high

Here's unsurpassed alkaline stripping power . . . free-flowing, uniform caustic flake! Here's unsurpassed assurance of supply . . . Dow multi-plant production: Midland, Michigan; Freeport, Texas; Pittsburg, California.

And here's unsurpassed dependability in delivery—the extensive Dow distribution network of terminals and regional stock points.

Better stripping, lowest cost, full supply, prompt delivery . . . *four good reasons* for ordering Dow caustic flake. THE DOW CHEMICAL COMPANY, Dept. AL 754K-2, Midland, Michigan.

you can depend on DOW CHEMICALS

DOW

For more data circle **195** on Reader Service Card

Everything

FOR SPRAY PAINTING and COATING

Binks

the complete, 1-source line of integrated equipment

If the material can be applied by spraying, you will find in Binks complete line exactly the right equipment to do the job better, a little faster and usually more economically.

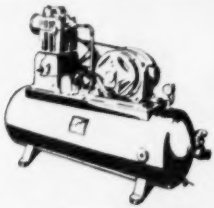
You have more than 1100 *standard* products from which to choose...all designed to work together...all the result of more than 50 years helping manufacturers improve their spray painting and coating operations.

If you have a problem involving the application of fluids...from water to heavy asphaltic materials...Binks engineers are ready to help you work out the simplest, best and lowest-cost solution.

Normally, all Binks products can be shipped immediately by your local distributor. You save time, money and effort when you standardize on Binks equipment.

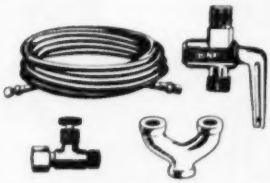
BINKS MANUFACTURING COMPANY
3118-40 Carroll Ave., Chicago 12, Illinois

PAINT SPRAY GUNS
13 different models



AIR COMPRESSORS
60 models 1 to 105 C.F.M.

OIL AND WATER EXTRACTORS
7 models to supply clean, dry air



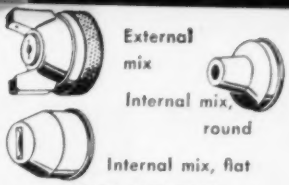
HOSE AND ACCESSORIES
12 types of hose
all accessories

MATERIAL HANDLING PUMPS
9 models

REPRESENTATIVES IN PRINCIPAL U. S. & CANADIAN CITIES • SEE YOUR CLASSIFIED DIRECTORY

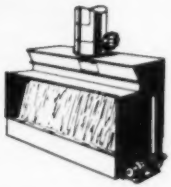
For more data circle **196** on Reader Service Card

SPRAY GUNS
for applying heavy materials



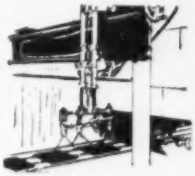
GUN NOZZLES
for paints and coatings of all kinds

EXHAUST FANS
21 models—each meeting safety standards



SPRAY BOOTHS
over 510 styles and sizes

MATERIAL TANKS
2 to 60 gallons



AUTOMATIC SPRAYING EQUIPMENT
for lower production costs

TELL ME MORE...

about Binks complete, integrated line of spray painting and coating equipment.

We are especially interested in:

- ☐ Complete Spray Painting System
- ☐ Paint Spray Guns
- ☐ Flock Guns
- ☐ Flow Guns
- ☐ Oil Guns
- ☐ Touch-up Guns
- ☐ Car Washing Guns
- ☐ Heavy Material Guns
- ☐ Foundry Guns
- ☐ Automatic Guns
- ☐ Blow Guns
- ☐ Engine Cleaners, Extensions, etc.
- ☐ Air Compressors
- ☐ Material Handling Pumps
- ☐ Hose and Accessories
- ☐ Spray Booths
- ☐ Exhaust Fans
- ☐ Oil and Water Extractors
- ☐ Material Tanks
- ☐ Automatic Spraying Equipment
- ☐ **We would like to see your representative**

Mail to:

Binks Manufacturing Company
3118-40 Carroll Avenue
Chicago 12, Illinois

Binks

NAME_____

COMPANY_____

ADDRESS_____

CITY_____ ZONE_____ STATE_____

New Equipment, Materials, Processes

Rectifier Overload Protector

An overload protection device, the Sel-Rex "Gard-O-Matic," is said to make it impossible to damage the germanium cells in case of overload or short circuit, in a Sel-Rex Germanium rectifier, according to an announcement from the Bart-Messing Corporation, 229 Main St., Belleville, N. J.

It is reported that the Sel-Rex "Gard-O-Matic" will prevent damage to the rectifier even if operation is attempted with a heavy bar bolted across the out-put bus bars.

The device consists of two separate auxiliary circuits which act instantaneously to shut off the unit when subjected to an ordinarily damaging overload or short circuit current, thus avoiding damage to the valuable germanium cells.

Bart-Messing engineers report that this overload device is being incorporated as standard equipment on all models of the company's Sel-Rex Germanium Rectifiers.

Literature describing these rectifiers is available from Bart-Messing Corp., 229 Main St., Belleville, N. J.

For more data circle **7** on Reader Service Card

Aluminum Finishing Process

A finishing procedure that produces a different type surface finish on aluminum sheet and extruded shapes has been announced by Aluminum Company of America, 1501 Alcoa Bldg., Pittsburgh 19, Pa.

Aluminum sheet processed with this finish presents a multitude of reflecting facets, offering a continually changing surface pattern.

Tentatively called "Spangle-Sheet," the finish has been applied in color and natural finish by Alcoa to plain and patterned rolled sheet and extruded shapes.

Alcoa laboratories have produced the finish by inducing the formation of abnormally large grains in a special aluminum alloy. Individual grains are then made to stand out in relief by an acid etch. Action of the etch develops tiny mirror-like facets on each grain. Since, to the viewer, each grain is positioned differently than its neighbor, varying degrees of reflected light can be observed simultaneously over the sheet's surface.

The result is an aluminum sheet with highlights surrounded by con-

Alcoa's Aluminum Spangle Sheet: many facets

trasting patches of light and dark gray.

"Spangle-Sheet" in color anodized finishes, shows at one time many shades of the color employed.

"Spangle-Sheet" is in the experimental stage and is not available commercially, it is stated.

For more data circle **8** on Reader Service Card

Automatic Plating Machine

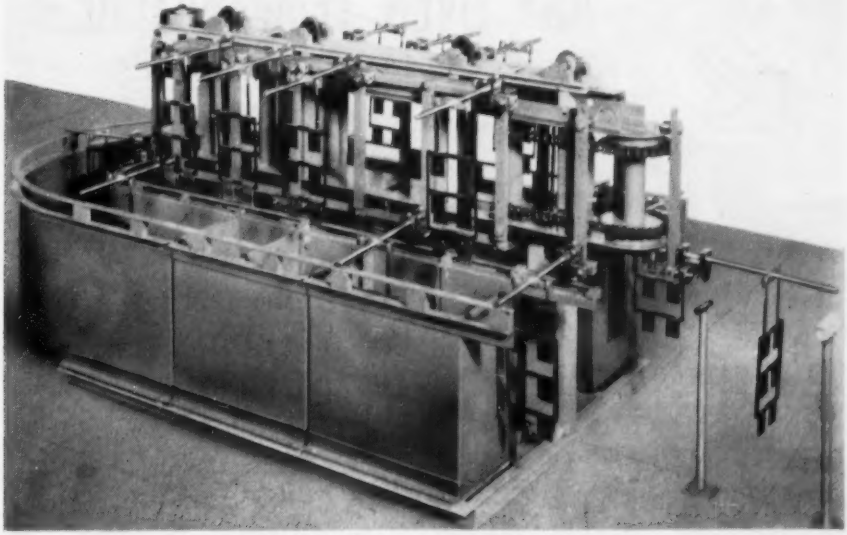
Lasalco, Inc., 2820 LaSalle St., St. Louis, Mo., has introduced a fully automatic plating and anodizing machine called the "Cycleflex."

The Cycleflex makes cycle changing easier, it is stated. Only changes in the positions of pick-up heads and minor tank partition changes are necessary.

A safety device and electro-mechanical control reduce the possibility of conveyor malfunction; make it impossible to push racks into the side of the tank; and prevent the load from dropping if power fails during work transfer.

The machine incorporates self-cleaning, heavy-duty contacts with positive 3-point contact and removable rack carriers that leave tank surfaces clear for easier servicing and manual plating of large pieces. Contacts and the elevating mechanism are not over the solution, thus corrosion of these parts is reduced.

The Cycleflex can be equipped for automatic loading and unloading of



Lasalco's Cycleflex Automatic Plating and Anodizing Machine: makes cycle changes easier

parts from standard double-spine racks, which can remain on the machine while parts are unloaded.

Hydraulic operation is standard and pneumatic operation optional. Speed control on lift and transfer is standard.

For more data circle **9** on Reader Service Card

★ ★ ★

Portable Dust Collector

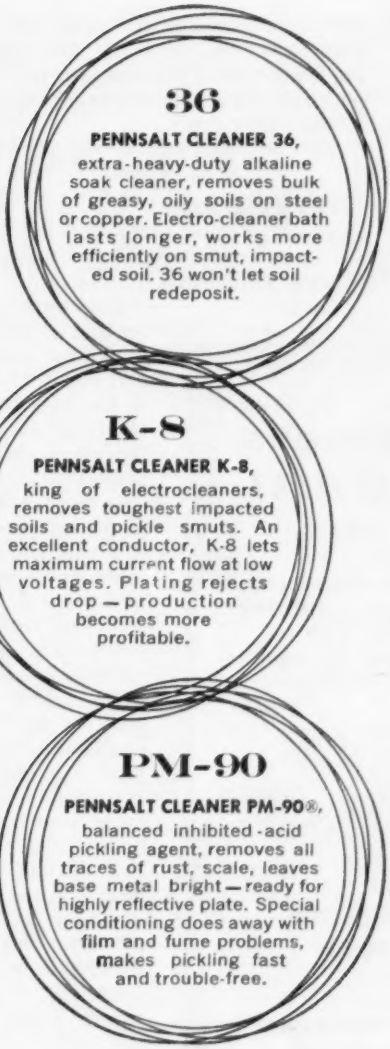
A square-type, portable DusKolector has been announced by Hammond Machinery Builders, Inc., 1622 Douglas Ave., Kalamazoo, Michigan.

Known as Model 40, using a ½-h.p. motor and mounted on casters for portability, the unit is said to be suitable for capturing dust from medium-size grinding equipment. It performs efficiently with milling machines, surface grinders, and abrasive belt equipment.

Hammond Model 40 Portable Dust Collector

ANY OVEN TEMPERATURE
at the turn of a dial
with
driQuik
INFRA-RED INTERLOCKING OVEN SECTIONS
OVENS ANY SIZE OR SHAPE
NO BULBS OR SOCKETS TO BURN OUT. Gives even field of heating energy, free from hot or cold spots.
Whether your job is low temperature metal prep or fast paint baking, your driQuik oven or heating panel or any part of it can be dialed to any temperature from 0% to 100% of rated power. One piece of equipment can do many jobs efficiently without additional installation cost.
driQuik DIVISION
DRY CLIME LAMP CORP.
GREENSBURG, INDIANA

For more data circle **197** on Reader Service Card


36
PENNSALT CLEANER 36,
extra-heavy-duty alkaline soak cleaner, removes bulk of greasy, oily soils on steel or copper. Electro-cleaner bath lasts longer, works more efficiently on smut, impacted soil. 36 won't let soil redeposit.
K-8
PENNSALT CLEANER K-8,
king of electrocleaners, removes toughest impacted soils and pickle smuts. An excellent conductor, K-8 lets maximum current flow at low voltages. Plating rejects drop — production becomes more profitable.
PM-90
PENNSALT CLEANER PM-90®,
balanced inhibited-acid pickling agent, removes all traces of rust, scale, leaves base metal bright — ready for highly reflective plate. Special conditioning does away with film and fume problems, makes pickling fast and trouble-free.

Pennsalt Chemicals

Metal Cleaners • Phosphate Coatings • Cold-Working Lubricants

Super-clean control all down the line with Pennsalt's NEW Super-cycle

ELECTROPLATERS: Be sure of complete control over the cleaning cycle, and thus benefit through an amazingly bright, uniform plate . . . a drastic cut in plating rejects . . . true economy in chemicals and operation. Using the new Pennsalt Super-Cycle, you assure yourself a *perfect balance* of high-potency cleaners designed for each other and for your plating line. These cleaners are great separately—but they're SUPER in the Super-Cycle!

WATCH THE SUPER-CYCLE WORK in *your* plating line, and learn the pleasant price facts about all three cleaners bought as a unit! Call the Pennsalt man for a demonstration, or write Metal Processing, Dept. 214, Pennsylvania Salt Manufacturing Company. East: Three Penn Center Plaza, Philadelphia 2, Pa.; West: 2020 Milvia Street, Berkeley 4, California.

A BETTER START FOR YOUR FINISH

For more data circle 198 on Reader Service Card

Model 40 DusKolector is compact—cabinet size is 25 by 22 by 28 inches.

With two inlets, it has a capacity of 700 c.f.m., and can be used with two 16 by 2-inch wheels or two 4-inch wide abrasive belts.

Hammond also manufactures portable filter type cabinet DusKolectors in two other sizes, a smaller unit with a 330 c.f.m. capacity and a larger unit with 1000 c.f.m. capacity. Completing the DusKolector line are four cyclone-type units with capacities ranging from 500 to 2000 c.f.m.

For more data circle **10** on Reader Service Card

★ ★ ★

Strip Coating

A coating called Strip-Kote has been developed by Chemical Consulting Service, Milwaukee, Wisconsin.

This temporary coating is used for protecting smooth and wrinkled metal finishes, enameled and lacquer finishes, highly machined precision parts, plastic, glass and chromium plated surfaces from being marred or scratched during processing, shipment and storage.

A milky-colored, latex-type emulsion, it is applied by brush or spray gun. The film becomes transparent, tough and flexible after Strip-Kote air dries for 20 to 30 minutes. The dried film is permanently flexible and easily stripped.

Strip-Kote contains no organic solvents. Coverage will vary according to the thickness of film deposited. The coverage is 250

have your silk screens made by NAZ-DAR!

Either Silk or Wire Mesh

- **Prompt Delivery anywhere in U.S.**
- **Absolutely TAUT screens for perfect registry to last impression of run.**
- **Perfect reproduction of your black and white drawing.**
- **Prepared by experienced technicians.**

PERFECT FOR

TV SETS NAME PLATES TOYS
DIALS ASH TRAYS CHASSIS

use → **NAZ-DAR WEATHERPROOF SILK SCREEN ENAMEL**

Uniformly high opacity during an entire run

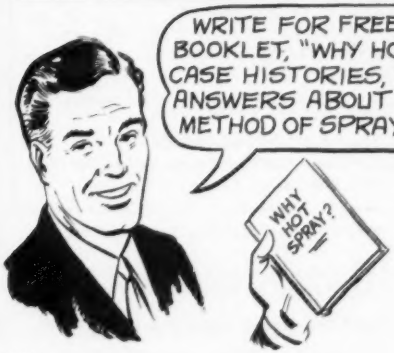
For screen and ink information, please write Dept. P6

THE NAZ-DAR COMPANY
461 Milwaukee Ave. • Chicago 10, Ill.
inks varnishes lacquers silks
screen plates squeegees films

For more data circle **199** on Reader Service Card

SPEE-FLO

HOT SPRAY MAGIC DOES IT AGAIN!


WRITE FOR FREE, FACT-PACKED BOOKLET, "WHY HOT SPRAY?"..... CASE HISTORIES, QUESTIONS AND ANSWERS ABOUT THIS PROVED METHOD OF SPRAY APPLICATION.
WHY HOT SPRAY?

Based on actual operating experience from Spee-Flo files.

SPEE-FLO

HOT SPRAY HEATERS

720 POLK AVE. • HOUSTON, TEXAS

For more data circle 200 on Reader Service Card

square feet per gallon for an 0.008-inch film. Greater coverage is attained when a thinner film is deposited.

A sample of Strip-Kote can be obtained from Chemical Consulting Service, 3711 S. Clement Ave., Milwaukee, Wisconsin.

For more data circle 11 on Reader Service Card

★ ★ ★

Compressor Modernization Kit

The DeVilbiss Company, Toledo, Ohio, has instituted a compressor change-over service.

DeVilbiss inaugurated an exchange system several years ago. The change-over program, which is an expansion of the exchange service, enables the owners of certain obsolete DeVilbiss compressors to procure a kit which will adapt a modern DeVilbiss air com-

DeVilbiss change-over kit modernizes obsolete compressors. Above: DeVilbiss 432 compressor replaces obsolete 235 model at left.

JELCO COP-BRITE

By comparison, it's your by-far-better copper plating additive!

The use of JELCO COP-BRITE requires

1. Only your regular copper solution
2. Just ONE additive—Cop-Brite
3. Small additive inventory . . . economy plus simplicity
4. Low make-up and replenishment additions
5. Standard plating equipment
6. **Only ONE additive, Cop-Brite, for both Barrel and Still Solutions**

The use of any other brightener requires

1. Special copper solution
2. From 2 to 5 additive materials
3. Large additive inventory . . . high operating costs
4. Large make-up and replenishment additions
5. Special plating equipment
6. Different additives: one series for Still and one series for Barrel Solutions

Cop-Brite . . . Operation-proven. Needs minimum maintenance—Provides maximum economy.

Write for full information

JELCO

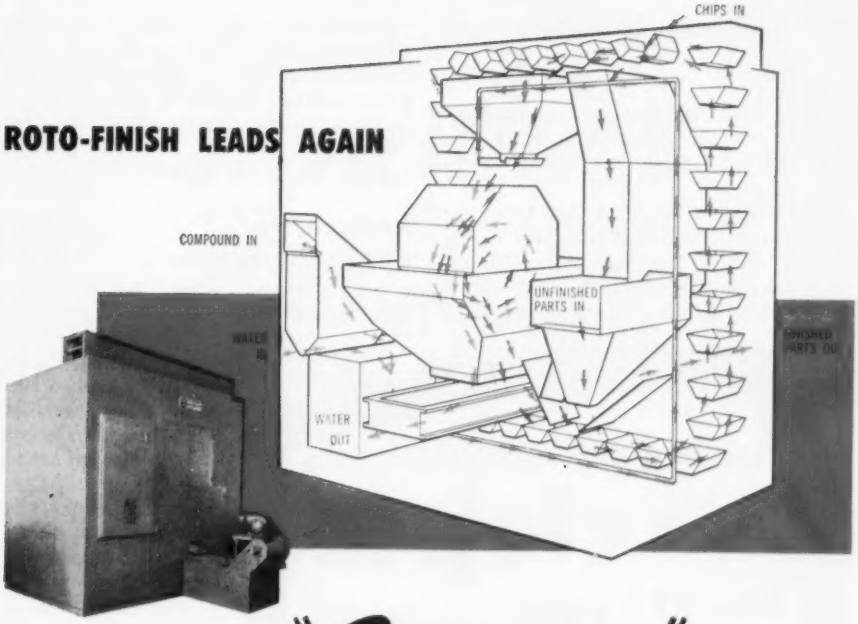
JELCO FINISHING EQUIPMENT CORP.

153 East 26th Street, New York 10, N. Y.

***Telephone:* LExington 2-3055**

For more data circle 201 on Reader Service Card

ROTO-FINISH LEADS AGAIN



the new "Rotomation" MACHINE

MAKES MECHANICAL TUMBLING A FULLY AUTOMATIC BARREL FINISHING PROCESS

- Completely Automatic
- Needs no operator in attendance
- Loads and unloads itself with each cycle.
- Cycle variable for different part requirements.
- Provides continuous operation
- Assures uniformity of finish
- Low cost operation — high production
- Complete package unit
- Simple to install . . . Electric, water, air and drain connections only.
- Suitable for straight line production.
- Thus, "Rotomation" barrel finishing machine becomes a machine tool.

Roto-Finish COMPANY

3704 MILHAM ROAD, KALAMAZOO, MICH.

P. O. Box 988 – Phone 3-5578

ORIGINATORS OF THE ROTO-FINISH PROCESS

For more data circle 202 on Reader Service Card

pressor to his present tank and motor. After completing installation of the unit, the old compressor is returned to DeVilbiss.

Compressors affected by the new program are the 225, which will be replaced with a 230 model; the 235 series and the 342 series will be changed over to the V-type 432 compressor.

Information about the change-over program may be obtained from The DeVilbiss Company, Dept. 318, 300 Phillips Ave., Toledo 1, Ohio.

For more data circle 12 on Reader Service Card

★ ★ ★

Reducer for Synthetic Enamels

An improved reducer for synthetic enamels has been introduced by Potter Paint Co., Cortland, N. Y. Called Hi-Sol Reducer, the product is said to give quick initial set to the enamel, preventing sags. It is also said to aid in producing a finish with higher gloss and less "orange peel." Hi-Sol prevents "case hardening" by keeping the enamel film "open" and allowing it to air dry or bake from the bottom up, the manufacturer states.

More Hi-Sol can be used in the spray mixture. For example, if the present mixture is one part reducer to four parts enamel, one part of Hi-Sol can be used with three parts of enamel.

The manufacturer offers a free sample of Hi-Sol reducer upon receipt of informa-

CLEPCO Quartz Paint Ovens are based on the use of special CLEPCO Quartz Heaters designed to emit that part of the heat spectrum most readily absorbed by paints.

Another major auto manufacturer reports that CLEPCO Paint Ovens are lower in original cost as well as in operating costs than the conventional gas fired convection ovens previously in use.

CLEPCO'S Complete Research Facilities are at your service to determine the most efficient quartz oven for your requirements.

SEND FOR COMPLETE INFORMATION

THE CLEVELAND PROCESS COMPANY

1965 EAST 57TH STREET • CLEVELAND 3, OHIO

For more data circle 203 on Reader Service Card

Finishing Problem?...

Experience

WATSON-STANDARD'S EXPERIENCE IN FORMULATING SPECIALIZED COATINGS IS INVALUABLE TO METAL FINISHERS

If your product includes metal finishing in its manufacture, it is wise to consult the Watson-Standard Laboratories on your coating problems. The services of our laboratory and field technicians are available without obligation.

"Knowledge, skill and technique through EXPERIENCE"

Watson-Standard Co.

225 Galveston Ave., Pittsburgh 30, Pa.

NEW YORK OFFICE: 15 Park Row, New York 38, N. Y.
CHICAGO OFFICE: 55 E. Washington Street, Chicago 2, Ill.

INDUSTRIAL FINISHES • PAINTS • PLASTICS • CHEMICALS

For more data circle 204 on Reader Service Card

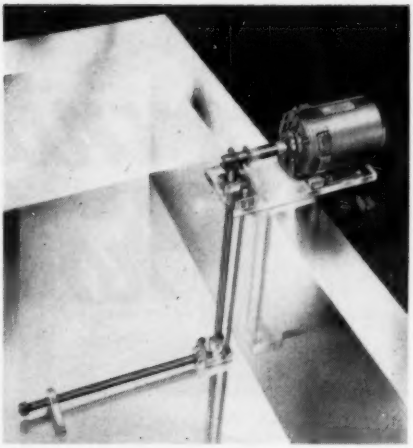
tion as to nature of product being finished and whether for air dry or bake. Write to Potter Paint Co., 21 Crawford St., Cortland, N. Y.
For more data circle **13** on Reader Service Card

★ ★ ★

Precious Metal Solution Agitator

An agitator specifically designed for precious metal electroplating solutions has been introduced by Technic, Inc., 39 Snow St., Providence 1, Rhode Island. The device is reported to afford vigorous but smooth agitation.

Technic Turbomatic Agitator Model GTA-40 has a submerged positive displacement pump rated at 150 g.p.h. It is designed for use in a tank 24 inches long and up to 24 inches in depth. Submerged parts of the Technic Agitator are plastic and stainless steel. The complete unit is clamped to the side of the tank by an adjustable thumb screw, no other fastening being required.
For more data circle **14** on Reader Service Card



Technic Precious Metal Solution Agitator

Bond® TACK CLOTH

PACKED IN ROLLS OR IN BULK
JUST THE WAY YOU WANT IT!

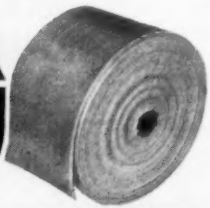
Stays Soft and Tacky — A SPECK-FREE FINISH EVERY TIME — Now available in white or gold — in Three Different Types of Cloth.

There's a big difference in TACK-CLOTHS—that's why BOND processes three different meshes of cloth with several types of formulations to give you the cloth that best "fits" your special needs. You can get BOND TACK CLOTH packed just the way that suits you best, too—in 150 yard Rolls of 36″ wide cloth or in handy Cartons.

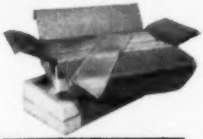
No matter which way you buy it, you can be sure that every square inch will stay SOFT and TACKY until the very last bit is used up.

All BOND TACK CLOTH is Spontaneous Combustion Proof, Lint-Free and Wax-Free. Gives a sparkling speck-free finish every time. Clean and Sanitary. No waste.

TRY THEM AND COMPARE RESULTS. Samples gladly sent upon request.
A WARRANTY OF SATISFACTION IN EVERY CARTON



IN ROLLS
Cut off any size piece as needed.

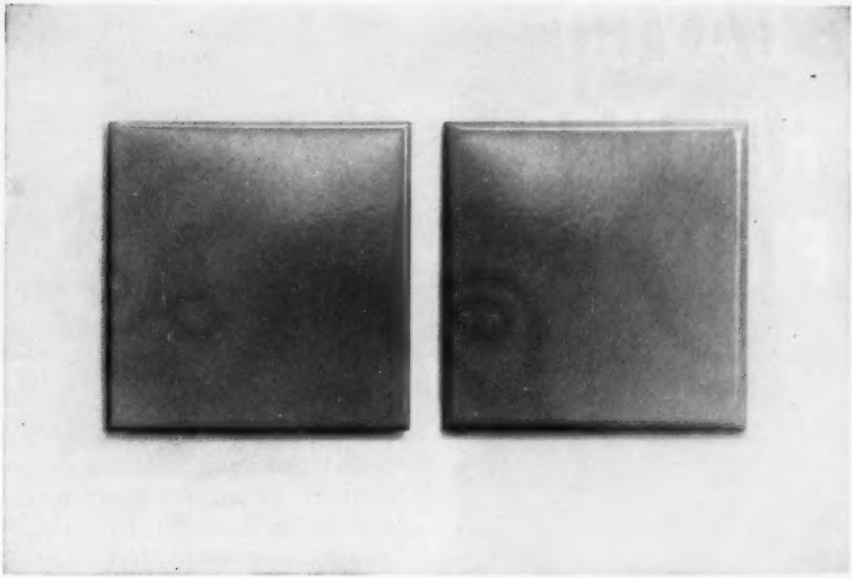


IN BULK
Size is 18″ x 56″—folded to 4½″ x 18″ for ease of handling. Cut and folded—ready to use.
Also Individually Packed in Glassine Envelopes —144 to the carton—

Bond® CHEMICAL PRODUCTS CO. 2639 N. CLYBOURN AVE. CHICAGO 14, ILLINOIS
"The Tacky Wiper Specialist"

For more data circle **205** on Reader Service Card

Which porcelain-on-aluminum tile is prefired?



THE TILE AT THE LEFT HAS BEEN PREFIRED . . . the one at the right Alodized with Alodine and enameled without prefiring. Although the prefiring operation has been eliminated, there is no loss of quality in the finished product. This is another first for Vikon, which introduced porcelain-on-aluminum tile.

Vikon Tile Corporation applies Alodine® coating to eliminate prefire cycle—makes substantial saving without sacrificing the fine quality or the permanency of its porcelain-on-aluminum tile.

In the 6-stage Alodizing process developed by ACP for Vikon, the 3S aluminum half hard coil stock is cleaned, treated with Alodine 1200, and dried. Residues and contaminants are completely removed to provide a perfect base for the porcelain finish. And no expensive prefire operation is required to maintain the uniformly fine quality of the finish. Not only did ACP provide the method for preparing the aluminum strip for finishing, but it solved the problem of preventing contamination of the tile during the stamping operation.

Tests of finished tile have shown that there is no spalling and no fracturing of the porcelain. Color matching is no problem, and rejects due to contamination are extremely low.

Still another advantage of this newly developed process for the manufacture of porcelain-on-aluminum tile is offered by ACP. Its Service Department will make periodic inspection of the process in operation and of the equipment. And its Quality Control Laboratories will run tests of finished coupons. Both are free of charge—added services that keep the Alodizing process working effectively.

Write us for Bulletin 1241A. It gives complete information about Alodizing with Alodine

AMERICAN CHEMICAL PAINT COMPANY, Ambler 14, Pa.

DETROIT, MICH. • ST. JOSEPH, MO. • NILES, CALIF. • WINDSOR, ONT.

CHEMICALS ACP PROCESSES

For more data circle 206 on Reader Service Card

DAYCO HAMMER FINISHES

For uniformity of pattern, depth of gloss, permanency, toughness, chip resistance; all features that help to make sales and build a quality reputation for your products, specify DAYCO baking or air dry Hammer finish.

Backed by half a century of "know how", Dayco finishes have a quality reputation you can depend upon. We have, or will produce for you, the special finishes your production calls for.

- Clear and colored Lacquers
- Primers
- Surfacers
- Baking Enamels
- Handle Finishes
- Removers
- Screening Materials (Lacquers—Vinyls—Synthetics)
- Undercoats

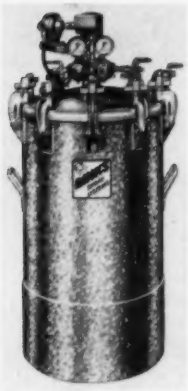
Fiftieth Anniversary
1906 1956

JAMES B. DAY & COMPANY

1872 Clybourn Ave. . . . Chicago 14, Illinois

Fluid Pressure Tanks

Binks corrosion-resistant pressure tanks are now equipped with an all stainless steel shut-off cock, according to a recent announcement from the manufacturer, Binks Manufacturing Co., 3118-40 Carroll Ave., Chicago 12, Ill.



Binks Pressure Tank: stainless steel stops corrosion

Reason for the use of stainless steel, it is stated, is to improve resistance to such corrosives as latex and ceramic materials. Stainless steel cock construction features a ⅜-inch tapered male outlet and a ⅜-inch straight male outlet.

Binks' corrosion-resistant series of fluid pressure tanks includes 5-, 10-, 15-, 30-, and 60-gallon capacities, with or without agitators, as desired.

Available in the same capacities and with the same fixtures, Binks' fluid pressure tanks for ceramic finishes have stainless steel construction of all fluid stop cocks, inside fittings, tubes, agitator paddles and inner containers. This use of stainless steel for all parts which come in contact with ceramic materials prevents both corrosion of the parts and fluid contamination, the manufacturer states.

For more data circle **15** on Reader Service Card

★ ★ ★

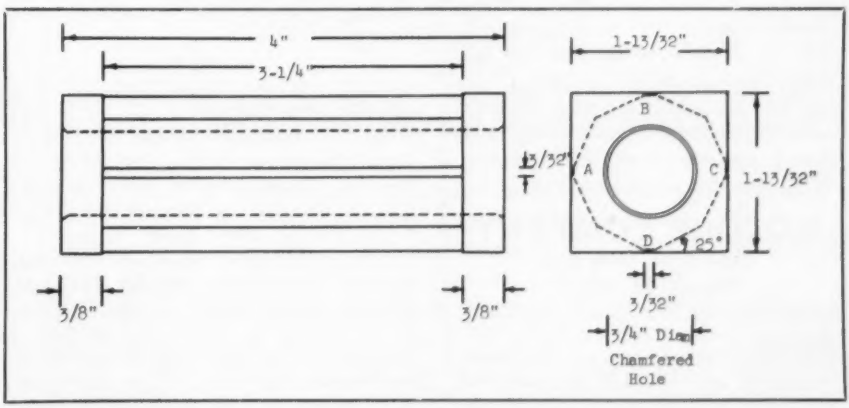
Paint Film Applicator

A four-edged applicator designed to apply a controlled thickness of paints and varnishes to panels for testing purposes has been developed by Shell Oil Company's paint research laboratory at Wood River, Illinois.

The applicator, called the "Shell Multiple Doctor Blade," has four "doctoring" edges instead of only one as on conventional applicators. The stainless

Clearances for Shell Doctor Blade

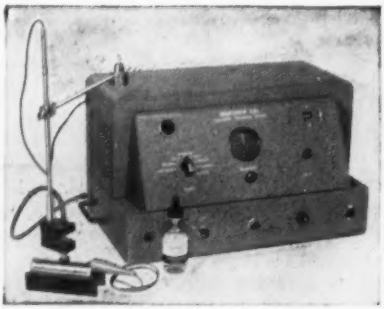
Gap	Gap Clearance, Inches		
	Blade 2	Blade 2	Blade 3
A	0.002	0.004	0.006
B	0.0025	0.0045	0.007
C	0.003	0.005	0.008
D	0.0035	0.0055	0.010



This diagram shows dimensions of the Shell Multiple Doctor Blade for applying test films

←——For more data on advertisement on opposite page circle **207** on Reader Service Card

You can measure plating thickness... 90-95% accurate!



WITH THE

ELECTRONIC THICKNESS TESTER

How many times have you tested plating thickness and wondered just how good your results are. The Kocour Electronic Thickness Tester solves this problem easily . . . it virtually eliminates the human element. You get consistently reproducible results with an accuracy of 90-95%. Furthermore, you can test the thickness of chromium, silver, tin, cadmium, zinc, brass, copper, nickel, lead, and other plating, with direct readings of plating thickness. Write for the details today!

KOCOUR COMPANY

4814 S. St. Louis Ave.

Chicago 32, Illinois

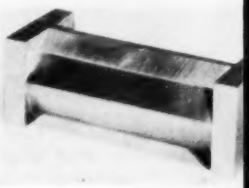
FREE! Get your copy of the bulletin "Questions and Answers" describing the KOCOUR ELECTRONIC THICKNESS TESTER.

For more data circle **208** on Reader Service Card

steel unit can be made by any machinist. Three of the Shell units can replace 12 conventional blades.

The applicator is shaped like a dumbell—except that its shaft is octagonal and its ends are square. The four "blades" are the four edges of the octagon that come to the middle of the sides of the squares. The clearance between the side of the square and the edge of the octagon determines the thickness of the paint film the blade will spread.

To use the applicator, paint or varnish is first placed on the selected surface (glass or metal). Then the applicator, with the desired edge face down, is passed over the surface to spread the paint or varnish according to the thickness desired. The spread material is then tested for drying characteristics, weather-resistance, and so on.



Shell Multiple Doctor Blade

For more data circle **16** on Reader Service Card

★ ★ ★

Masking Tape

A high-temperature crepe masking tape, identified as No. 102 Behr-cat, has been announced by Behr-Manning Co., a division of Norton Company, Dept. PF-10, Troy, N. Y.

The quick-stick, adhesion and easy unwind properties of this pressure-sensitive tape make it suitable for general purpose use in a wide variety of masking operations. It will resist temperatures of 275 deg. F. for one hour, it is stated. It is made in a full range of widths from ¼ inch upward.

For more data circle **17** on Reader Service Card

For RAPID STOCK REMOVAL

Orbital Action Sanding

NATIONAL MODEL 400

National's Model 400 Orbital Action Sander is made for tough operation on production lines. Properly used, it will cut sanding time as much as 75% . . . reduce operator fatigue . . . and produce a better finish. Over 100,000 Model 400 Sanders are now in operation in industries throughout the world.

NATIONAL SANDERS

NATIONAL NS SANDERS

National makes a complete line of block sanders with either orbital or straight line action . . . air or electric driven. Write for more information today.

Pioneers in the Manufacture of Orbital Action Sanders

NATIONAL AIR SANDER, INC.
2818 AUBURN ST., ROCKFORD, ILLINOIS

For more data circle **209** on Reader Service Card

24 HOUR SUNLIGHT

means better paint for industry

To guarantee exact duplication of color, a sample of each batch is checked against your required color standard under controlled light conditions. Sunrise and high noon light conditions can be produced by the lamp shown above, day or night. Further checks on color employ an electronic color difference meter.

Developing *the right paint for your product or plant* is only the first step in the complete Lowe Brothers Technical Service.

Highly skilled technicians also perfect production techniques and supervise their control to guarantee that every mix of your formula is exactly the same and meets your rigid specifications.

To control this production the very best testing equipment, such as the standard-light condition unit shown here, are utilized at every step during manufacture. As many as 89 separate production tests are standard for some paints.

This combination of technical "know how" and "production ability" assures you of the right paint for the best job every time. For this complete service call in your finishing specialist at LOWE BROTHERS, 434 East Third Street, Dayton 2, Ohio.

LOWE BROTHERS

INDUSTRIAL FINISHES

Quality unsurpassed since 1870

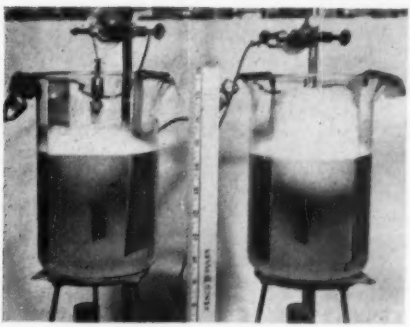
For more data circle **210** on Reader Service Card

Electrocleaner

Wyandotte B.D., a recently reformulated electrocleaner, is now dustless. In addition to becoming a "nonsneeze" product, Wyandotte B.D. now also provides foam control. It is a product of Wyandotte Chemicals Corp., Wyandotte, Mich.

Wyandotte B.D., according to users, is particularly adapted to applications where high conductivity in steel electrocleaning is desired. B.D. is also effective for many hot tank paint stripping jobs.

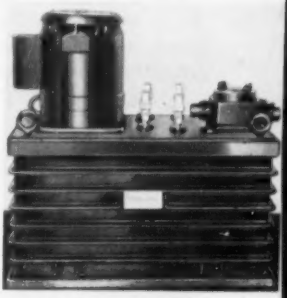
For more data circle **18** on Reader Service Card



Top photo shows dustless characteristics of Wyandotte B.D. (right). Bottom photo shows controlled foaming action of the product. Beaker on the left contains reformulated B.D. under the same conditions as beaker on right, which contains B.D. before reformulation.

Process Control

Ideal process conditions important in metal finishing may be maintained accurately with the Swisstrol, an electronic - hydraulic control unit manufactured by The Swiss Colony Engineering Division, Monroe, Wisconsin.



Swiss Colony Control

The compact unit is useful in controlling pressure, vacuum, temperature, liquid level, flow, or condensate drainage. It is adaptable to practically any manufacturing process, it is stated.

The unit's speed of action eliminates problems of "lag" and "hunting," the manufacturer states. It has only one moving part. Installation is simple, involving three steps to make the necessary connections.

Complete information on the Swisstrol, including various types of master equipment, is contained in Form No. ST-1, which may be obtained from Engineering Division, The Swiss Colony, Monroe, Wisconsin.

For more data circle **19** on Reader Service Card

★ ★ ★

Pre-Coated Metals

A line of pre-coated metals, ready to be formed, blanked, drawn, crimped or embossed in the user's plant, has been introduced by Roll Coater, Inc., P.O. Box 67, Pendleton, Indiana.

Pre-painted cold rolled steel, aluminum, zinc, and laminated plastic on aluminum or steel are available. Widths from ½ inch to 12 inches are furnished, according to specifications.

The metal strip is cleaned and phosphatized, roller-coat painted, baked and coiled for delivery. When it arrives in

the user's plant it is ready for fabrication. The process produces a finish that will withstand fabricating operations such as drawing and forming without chipping, flaking or crazing.

A complete range of colors is available, in lacquers, epoxies, alkyds, ureas and chemical finishes.

For more data circle **20** on Reader Service Card

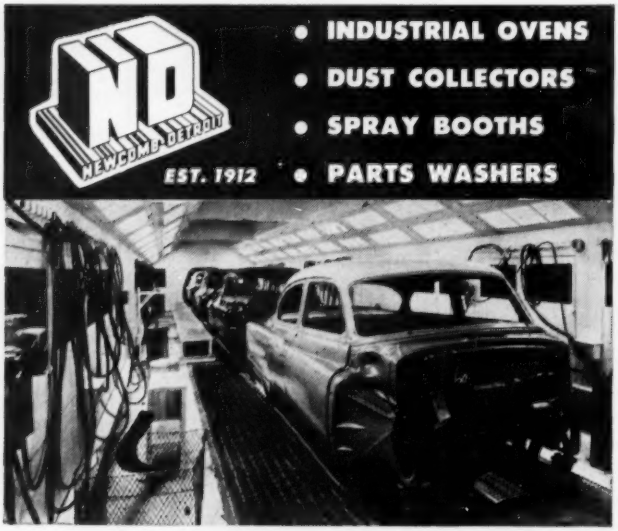
Ultrasonic Cleaner

An ultrasonic cleaning apparatus, Model AP-10-B, the latest in the Sonogen® line, has been developed by Branson Ultrasonic Corporation, 37 Brown House Rd., Stamford, Connecticut.

The AP-10-B is a small, compact instrument, designed for bench-top operation in washing delicate, intricate parts that must be "surgically" clean, such as watch mechanisms, instrument components, small and miniature ball-bearings and electronic parts.

The instrument comprises a 36-40 kc./sec. power generator, and a cylindrical cleaning tank, with transducers hermetically sealed into the base. RF power output of the generator is 50 watts average, 200 watts peak on pulses. Tanks are of 1-pint, 1-quart, or ½-gallon capacity, giving a maximum effective cleaning area of 18 square inches. Two of the smaller tanks may be operated simultaneously, and two of the larger tanks alternately, depending on tank size specified.

Cleaning is aided by ultrasonic activation of the solvent, which



SPRAY BOOTHS

Newcomb Spray Booths are adaptable to manual, automatic, and electrostatic spray operations—floor or overhead conveying. Designed for minimum maintenance. Individual tanks or central sludge systems. Automatic sludge recovery systems.

Dip coating and Flow coating systems complete with ventilated drip areas and complete fire protection.

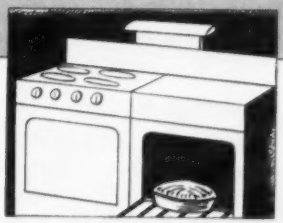
For Bulletins and Quotations, write to:

NEWCOMB-DETROIT

5761 RUSSELL ST. • DETROIT 11, MICH.

For more data circle **211** on Reade Service Card

DONE TO A TURN
...with Stanley Silicones



When Taylor's new Dial Oven Thermometer needed a coating that would stand up to high oven heat, Stanley chemists cooked up just the right silicone enamel in three bright, fast colors that bat 1.000 in the hot stove league . . . one more example of a Stanley custom finish making a good product better. Maybe your product could profit, too. Why not write us for Free literature, at 31 Berlin St., East Berlin, Conn.

STANLEY CHEMICAL

LACQUERS
SYNTHETICS
VINYLS
ENAMELS

For more data circle **212** on Reader Service Card

literally blasts soils away from the surfaces to be cleaned. However, the ultrasonic "scrubbing" is, paradoxically, so gentle that it cannot harm even the most delicate components. The cleaning action reaches all surfaces accessible to the fluid, even blind holes, complex geometry, and other difficult, inaccessible areas.

Branson Ultrasonic Generator with two transducers being used for cleaning small parts

Less cleaning time is needed, and use of lower temperature cleaning solvent is possible with Branson ultrasonic equipment, it is stated.

For more data circle **21** on Reader Service Card

★ ★ ★

Rectifier with Periodic Reverser

A combination selenium rectifier and periodic current reverser has been developed by Rapid Electric Company, 2877 Middletown Rd., Bronx 61, N. Y.

This model is rated at 100 amperes, 0-6 v., d.c. Designed for requirements which call for exceptionally uniform plated deposits, periodic current reversal changes the direction of the plating

rugged enough for ball burnishing

ESBEC series HD ABRASIVE TUMBLING BARRELS

never need babying, even on the toughest jobs. You can count on uninterrupted production, long life and low upkeep. They're truly heavy-duty, with extra-rigid welded-steel drums, oversize self-aligning bearings, plus power to spare. They give higher production rates with their low loading heights, large unobstructed door openings, quick-locking safety doors, and safe accessible controls.

All **ESBEC** barrel finishing equipment offers practical, profit-producing features based on first-hand experience in our own, and other finishing plants.

Write for catalog today!

EQUIPMENT SUPPLIES ABRASIVES

ESBEC BARREL FINISHING CORP

19 BEECH ST., BYRAM, CONN.

For more data circle **213** on Reader Service Card

Hammond OF KALAMAZOO

GOOD MACHINERY SINCE '82

MODERN *Self Contained* GRINDER-POLISHER

Hammond Variable Speed (1500 to 3000 RPM) Polishing and Buffing Lathe. Models up to 50 HP available.

Hammond Cyclone Duskolector. One of a wide line of Cyclone and Filter Types.

Hammond Backstands. 10 Air and Spring Tension Models to choose from.

Write for Catalog No. 60 showing America's most modern and complete line.

Hammond Machinery Builders INC.

1622 DOUGLAS AVENUE • KALAMAZOO, MICHIGAN

For more data circle **214** on Reader Service Card

ONE STEP REMOVAL

...of rust, paint, phosphate coatings and other soils

with

R.&P. STRIPPER No. 27

A simple soak followed by a rinse . . . instead of separate stripping, pickling, neutralizing, and rinsing operations.

R. & P. Stripper No. 27 is a highly concentrated new type alkaline compound . . . soluble in water, non-corrosive to ferrous metals, non-toxic, non-volatile, gives off no obnoxious corrosive fumes.

No. 27 saves plant space, labor, power and time. Eliminates tanks, maintenance, chemical costs.

Write for folder

Metasurf
CHEMICAL PRODUCTS FOR TREATING METAL SURFACES
CORPORATION
12830 EATON
DETROIT 27, MICHIGAN
BRoadway 3-3880

For more data circle **215** on Reader Service Card

current in the tank at regular intervals, removing deposits from higher points. Irregularity and roughness are greatly reduced after a sufficient number of P. R. cycles.

Rapid Rectifier Includes Periodic Reverse

Periodic current reversal is independent of the plating rectifier and can be used separately. Simple switching reverts P. R. to normal plating. Pilot lights indicate direction of current at all times. P. R. switching action is cycle timed, fast and arc-less, the manufacturer states.

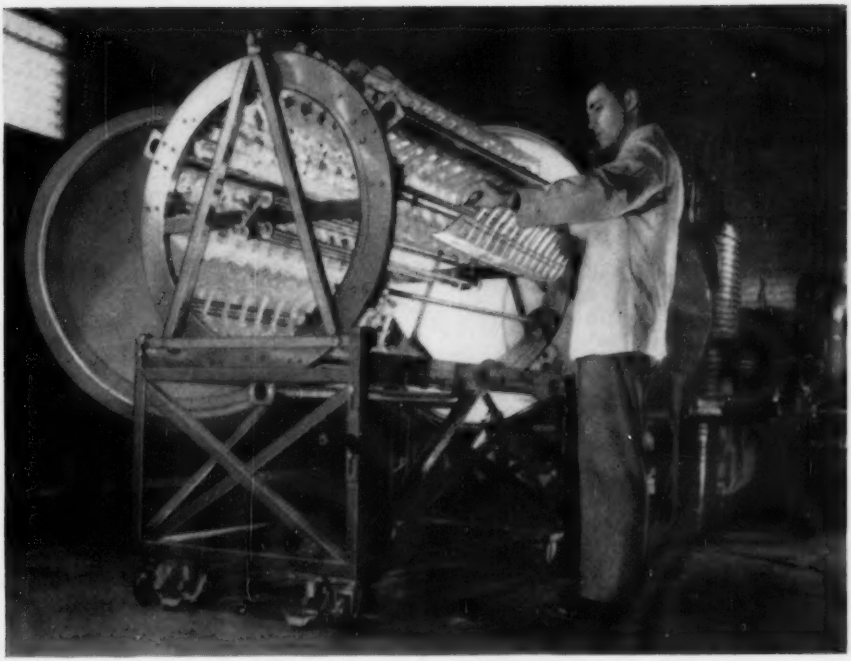
For more data circle **22** on Reader Service Card

★ ★ ★

Acid Pump

An acid pump designed for removing acids or other liquids from carboys or bulk containers, including 55 gallon drums, has been announced by Engineered Equipment Co., Box 207, Warsaw, Ind.

To use, a large rubber stopper is inserted in the opening of a carboy or container and the vent hole is plugged. Polyethylene plastic tube is inserted in the jug or receptacle to receive acid.



How to get new business with a new process . . . *vacuum metallizing*

Add vacuum metallizing to the services you render to customers, and you'll brighten your products *and* your profits at the same time.

Perhaps you'll even have the key to the doors of new customers.

Vacuum metallizing is an economical way to give color and high-quality finish to plastics, metals, glass and other materials.

Using lacquers and various metals (low-cost aluminum is one of the best), you can offer an almost infinite number of rich-looking colors and finishes—all beautifully highlighted by a mirror-like backing.

Vacuum metallizing is an easy operation. Average personnel can become expert coaters in a few hours.

There are a variety of *CVC* machines to fit your budget and needs:

For mass production—For coating large pieces and mass coating medium- and small-sized pieces, we recommend the 48" coater shown above. With this coater you can metallize from hundreds to thousands of pieces per cycle—depending upon the type and size of material being coated. You can run 3 to 6 complete process cycles per hour.

For medium quantities—The 30" coater is more economical for medium quantity runs. The specific amount that can be metallized per cycle again depends upon type and size of material. You can easily attain 5 to 7 cycles per hour.

For optics, lab and pilot plant—Small coaters are available for production coating of optics and other small parts, and for laboratory and pilot plant work.

Literature and help—Before you decide on any coater, send for technical data on the complete *CVC* line. One of our sales engineers will be glad to help you decide which type and size best meets your needs.

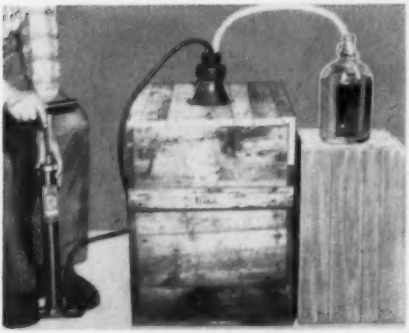
Consolidated Electrodynamics

Rochester Division, Rochester 3, N. Y.

formerly Consolidated Vacuum

NATIONWIDE COMPANY-OWNED SALES AND SERVICE OFFICES

For more data circle **216** on Reader Service Card



Hand Acid Pump removes acids from carboys

The other end of tube passes through the stopper and is suspended in the acid. A hand pump with 4 feet of rubber hose is operated to build up pressure inside the container. Pressure will not exceed eight pounds, but it is sufficient to force out liquid in a gentle, steady flow. If pressure exceeds safety margin, a plug in the vent will release. When the quantity of acid desired has been pumped, the plug is removed to release pressure.

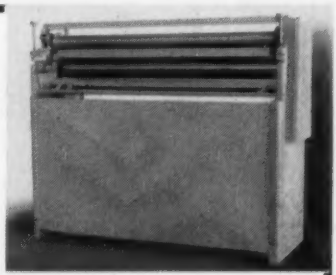
For more data circle **23** on Reader Service Card

★ ★ ★

Electroformed Mold Cavities

Camin Laboratories, Inc., Brooklyn, N. Y., has announced a method for making plastic mold cavities.

A nickel-electroforming process, it is useful in making exceedingly deep cavities; in making cavities which must reproduce exacting surface designs and textures; and for making a series of identical cavities. Camin Electroformed cavities can reproduce intricate shapes that can't be machined or hobbed, it is stated.



Cincinnati **PRECISION ROLLER COATER**

- SPEEDS PRODUCTION!
- SAVES LABOR!
- SAVES UP TO 50% ON COATING MATERIALS!

Now . . . economical production coating of cardboard, metal, plastics, and similar materials. For complete information, write

Cincinnati SCREEN PROCESS SUPPLIES, INC.

43 Walnut Street
Cincinnati 2, Ohio

For more data circle **217** on Reader Service Card

TRUE BRITE BRASS SOLUTION

A foolproof solution which has been in use over 6 years in light and heavy production.

- Ready To Use—Just Add Water
- No Variance in Color
- Trouble-Free—Little Supervision Needed
- Low Cost—Additions only once a day

Available in a variety of colors. Will match your sample.

Write for technical bulletin and prices.

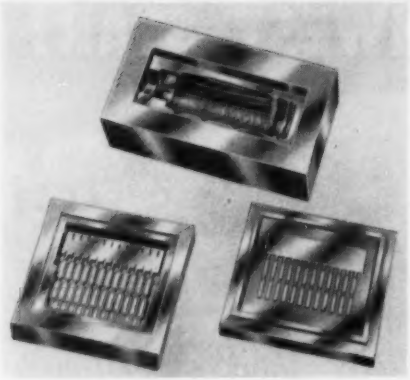
TRUE BRITE CHEMICAL PRODUCTS CO.
Box 31, Oakville, Conn.

For more data circle **218** on Reader Service Card

A NEW NORTHWEST STAR!

Northwest 449 water soluble compound replaces powder and liquid combinations . . . eliminates metal cleaning hazards and disposal problems. Harmless and SAFE to use, yet remarkably efficient for preparing non-ferrous metallic surfaces for plating and finishing. Has long bath life . . . costs no more than ordinary cleaners. *Get our expert analysis of YOUR job by calling or writing us today.*

For more data circle **219** on Reader Service Card



Camin Electroformed Plastic Mold Cavities

Camin states that this method of making mold cavities has the following advantages:

1) Nickel does not rust or oxidize, thus danger of cavities corroding during downtime is eliminated.
2) Nickel is not attacked by mold lubricants.
3) No interior polishing is necessary on these cavities — the original surface finish of the hob is reproduced. There are no pores or other surface defects.
4) Electroforming can be used advantageously to make such things as precision gear cavities; long, narrow shapes such as pen barrels, toys, and eye droppers; parts where great detail is required; and parts with grained surfaces.

Complete information on this method is available from Camin Laboratories, Inc., 104-14 S. Fourth St., Brooklyn 11, N. Y.

For more data circle **24** on Reader Service Card

★ ★ ★

Plating Control Instruments

Two instruments designed to aid in chemical and cost control of electroplating have been announced by the F. D. Pace Co., 69-73 Scribner Ave., N. W., Grand Rapids, Mich.

Autoramic Brightener Feeder

The first of these devices, the Pace Ampere Hour Recorder, is an electronic device for recording ampere hours consumed in electroplating. This instrument is connected to the same shunt as the ammeter on the control panel of the power equipment.

A six-digit counter is installed in the recorder cabinet. The counter can be reset only by opening the cover, thus

PRODUCTS FINISHING directory

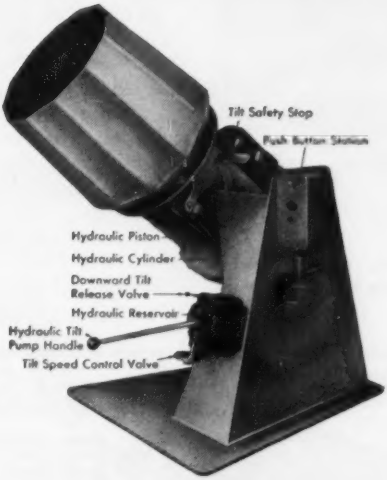
source book for:

EQUIPMENT
MATERIALS
PROCESSES

used in the Finishing Industry—
Electroplating,
Paint Finishing,
Porcelain Enamel,
Vacuum Metalizing.

PRODUCTS FINISHING directory—

...ask BAIRD about it



Find out why this **BAIRD** Model **H** is the best Tumbling Machine for many installations

Tumbling operations have become one of industry's most effective low-cost production methods . . . with wide-open opportunities for increasing application.

The Baird Model H machine . . . entirely new in design . . . has been developed with these important expanding applications in mind. It is essentially a production-line machine . . . built to pay out in freedom from maintenance, long service life, and operating ease when installed for constant-duty service.

It is "clean limbed" and efficient, with "finger-tip," effort-saving controls for either manual-hydraulic or power tilting. All types of barrels may be accommodated, and Baird furnishes a complete selection, including electrically heated types.

If your requirements call for tumbling machines capable of constant, dependable production-line operation at minimum cost per service hour, this NEW BAIRD MODEL H will be your best selection. Our experience is yours to call upon . . . "Ask BAIRD about it." Write Dept. PF.

AUTOMATIC MACHINE TOOLS • AUTOMATIC WIRE & RIBBON METAL FORMING MACHINES • AUTOMATIC PRESSES • TUMBLING BARRELS

THE BAIRD MACHINE COMPANY
STRATFORD CONNECTICUT

4BA56

For more data circle **220** on Reader Service Card

Pace Ampere Hour Recorder aids in chemical and cost control of electroplating operations.

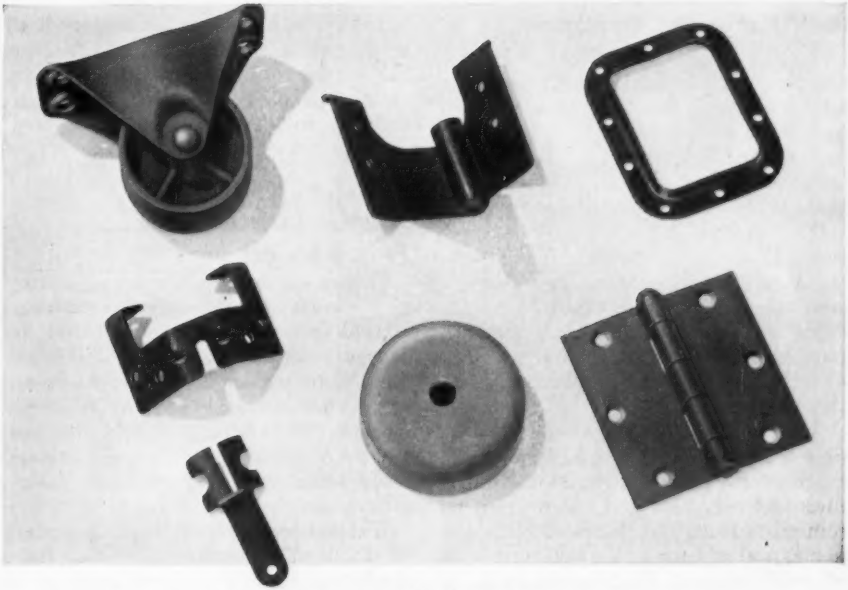
reducing the chance of accidentally destroying the continuity of recordings being made.

Weight of anodes consumed in a given period is directly proportional to the number of ampere hours consumed. Solution dragout is proportional to ampere hour consumption and surface area plated. Thus the cost of chemicals consumed and of anodes can be computed with the aid of this instrument.

The recorder can also be used to tell the plater when chemical additions are required. Having this exact method of

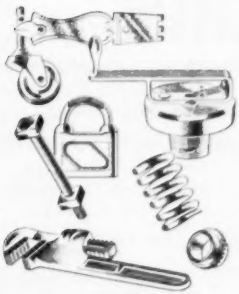
the SECRET of
BETTER
SPRAYING...
"HOLLOW AIR®" produces the widest, wettest, most uniformly distributed spray pattern obtainable handling synthetic enamels —an exclusive feature of the BLACK ARROW line of paint spray equipment.
Less pressure required . . . Paint and air are blended so that force alone is not relied upon to break up the paint.
Write today for information or see your local jobber
BLACK
BLACK MANUFACTURING COMPANY
Livingston, New Jersey
Manufacturers of Precision Built Paint Spray Equipment

For more data circle 221 on Reader Service Card



A manufacturer of metal stampings* writes:

"There are many outfits offering something like Parkerizing, but we want the real thing."



Some typical parts which are protected from rust by treatment with Parco Compound

Parco Compound† (Parkerizing†) is the original rust-resistant phosphate coating for iron and steel. For forty-two years it has protected hundreds of different types of products—from bolts to boats.

There are other products "like" Parkerizing, but none quite so effective, so dependable, so thoroughly tested and proven.

Parkerizing is simple, fast, and costs very little. It can be used on any iron or steel article which can be immersed in the tanks. Since it does not change the dimensions of the treated parts, it is excellent for threaded or close-fitting components. Parts treated with Parco Compound may be finished with stains, waxes, oils or paint.

You, too, should demand "the real thing." Use Parkerizing for rust resistance.

**Name on request.* *†Parkerizing, Parco—Reg. U.S. Pat. Off.*

PARKER RUST PROOF COMPANY
2172 E. MILWAUKEE, DETROIT 11, MICHIGAN

Since 1914—leader in the field

BONDERITE corrosion resistant paint base | BONDERITE and BONDERLUBE aids in cold forming of metals | PARCO COMPOUND rust resistant | PARCO LUBRITE wear resistant for friction surfaces | TROPICAL heavy duty maintenance paints since 1883

For more data circle 222 on Reader Service Card

control, the plater can make smaller additions more frequently, thus keeping his solutions always up to standard, rather than allowing them to fall below standard and then making a large addition of chemicals.

The second instrument, the Autoramic Brightener Feeder, is a device to pump a stipulated amount of brightener into the plathing bath automatically upon a signal from the Pace Ampere Hour Recorder. It adds brightener only when needed and in the quantity needed.

The Autoramic Brightener Feeder delivers approximately 0.10 ounce of brightener per actuation at its maximum delivery rate and one drop at its minimum rate. This small amount disperses and maintains the optimum level of brightener in the plating bath. If the load in the bath is small, the number of actuations from the ampere-hour meter will be small; if the load is large, the number of actuations will be increased proportionally, and brightener delivery will be increased.

For more data circle **25** on Reader Service Card

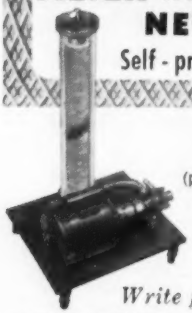
★ ★ ★

Plastic Laboratory Fume Hood

Plastic, corrosion-resistant laboratory fume hoods of many different sizes and shapes are being manufactured by Haveg Industries, Inc., 914 Greenbank Rd., Wilmington, Delaware. They are said to provide resistance to the corrosion of a wide variety of acids (including even hydrofluoric in some materials), salts, alkalies, alcohols, esters, ethers, and hydrocarbons.

These hoods are offered in a variety of standard and special sizes with fume ducts and exhaust systems made up of standard size duct and fittings to meet

FILTER with a Sethco NEW, exclusive Self-priming PUMP



Model LSIN-20
300 gal./hr.
(portable: 14"x16"x24" high)
filters solutions
from ph 0 to ph 14

25 other models
to fit your needs

Write for Folder

- **FILTER ASSEMBLY:** High temp. lucite. Two #10 cotton or dynel filter tubes on ss core.
- **PUMP:** Stainless steel 316, self-priming.
- **MOTOR:** ¼ H.P., totally enclosed, ball bearing, Capacitor, 110 V, 60 Cy., 1 ph.
- **PANEL:** Linen impreg. phenolic laminate, 14" x 16" x ½" thick; rubber tire, ball bearing casters.

HOSE: 20 ft. reinforced 2 ply chemical hose.

Sethco Mfg. Co.

70-72 Willoughby St., Bklyn. 1, N. Y. • ULster 5-8940

For more data circle **223** on Reader Service Card

TUMBLING CHIPS

PROCESSED LIMESTONE HONING CHIPS are excellent for producing a super fine finish on non-ferrous metals.

PROCESSED RED GRANITE ABRASIVE CHIPS are exceptionally well suited for developing a fast cut on ferrous metals.

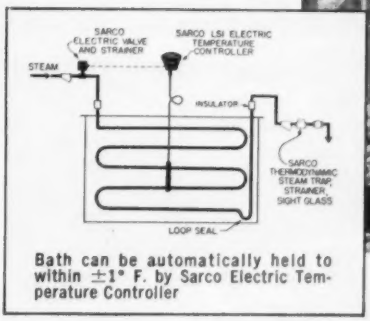
CHIPS IN 16 SIZES

FREE CATALOG AND CHIP SAMPLES FOR COMPARISON.

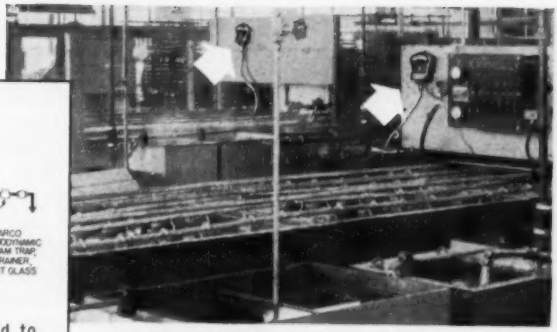
SAMPLE PARTS PROCESSED
Write or Call
VE 8-2071

UNIVERSAL TUMBLING SUPPLY CO.
14337 Mansfield **Detroit 27, Mich.**

For more data circle **224** on Reader Service Card



Bath can be automatically held to within ±1° F. by Sarco Electric Temperature Controller



Plant of Regal Plating Co., Inc., Providence, R. I. where 32 electroplating tanks are equipped with Sarco LSI Electric Indicating Temperature Controllers.

How low-cost Temperature Control ended "blue haze," pitting, burning

Regal Plating Co. now gets high quality plating with minimum of rejects

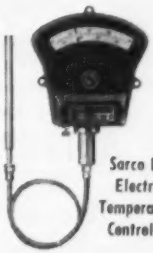
This well-known job plater specializes in high quality plating of costume jewelry and fishing lures. During an expansion program management ordered the elimination of these common plating difficulties: blue haze on nickel plate, pitting of copper plate and burning of sharp points.

These troubles were due to creeping bath temperatures . . . the result of *manual* temperature control, which is always unreliable.

To solve these problems and step up efficiency, Regal installed Sarco LSI Electric Indicating Temperature Controllers on all 32 plating tanks. Result: above troubles completely eliminated, rejects greatly reduced, no more burnishing of nickel plate.

Investigate the advantages of Sarco Temperature Controllers. Write for Handbook No. 6 or consult your Plating Supplies Jobber. Sarco Company, Inc., Empire State Bldg., New York 1, N. Y.

SARCO *improves product quality and output*



Sarco LSI Electric Temperature Controller

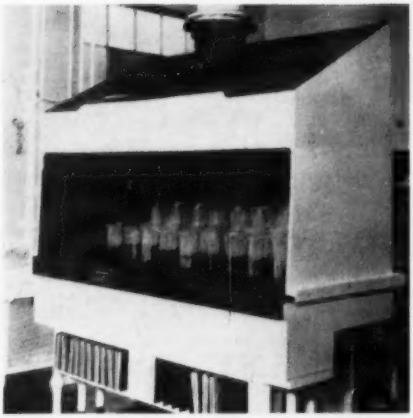
A COMPLETE SYSTEM FOR AS LITTLE AS $130 A TANK!

Accurate to ± 1° F. Simple. Dependable. Easily installed.

Easy-to-read controller dial indicates temperature being maintained. Temperature setting quickly changed by turning one knob.

2159-B

For more data circle **225** on Reader Service Card



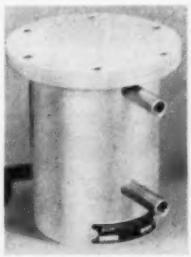
Plastic fume hood—good corrosion resistance

almost any condition. Bifurcator housings, also of corrosion resistant plastic, can be made an integral part of the overall exhaust system.

For more data circle **26** on Reader Service Card

Ultrasonic Transducer

A high-power magnetostriction-type transducer has been introduced by Acoustica Associates, Inc., Glenwood Landing, L. I., New York. Model AM-203B is designed for use in large scale ultrasonic cleaning, degreasing, descaling, plating and other metalworking and finishing operations.



Acoustica Transducer

This transducer is used with matching stainless steel jar or is externally mounted on a tank or trough. Only the Teflon face, which is impervious to solvents, most strong acids and alkalis, and other corrosive solutions is in contact with the solution. Average rf power applied to the transducer is 66 watts/

Randolph

EXPERIENCE and RESEARCH MEAN

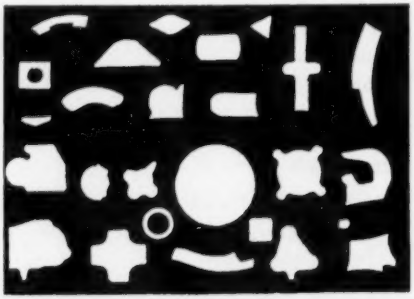
BETTER FINISHES for your products

LACQUERS • ENAMELS
DOPES • THINNERS
CLEAR METAL FINISHES
COLORED LACQUERS
CLEAR S.G. FOR METAL
TEXTURE ENAMELS
SPECIALIZED PRODUCTION FINISHES
AIRCRAFT FINISHES

Depend on us for Prompt Delivery

RANDOLPH PRODUCTS CO.
CARLSTADT, N. J.

For more data circle **226** on Reader Service Card



Pre-Cut Masks Speed Finishing

Brady Pre-Cut Masks are self-sticking — go on fast and accurately. Protect from finishing to inspection. Hundreds of shapes and sizes in stock, for paint spraying, baking, tumbling, etc. Specials made to order. Fast delivery. Distributors in 150 cities.

Write for free samples and Bulletin 160-C.

W. H. Brady Co.

746 W. Glendale Ave., Milwaukee 12, Wis.

For more data circle **227** on Reader Service Card

WYANDOTTE PRESENTS

a superior electrocleaner for nonferrous metals in automatics or hand lines

Laboratory and production tests prove that Wyandotte's new electrocleaner, LECTRITE-NF, improves results, cuts costs! It does an outstanding job on nonferrous metals, especially brass, and provides the following advantages:

INHIBITED to prevent etching, staining, excessive oxidation, clouded plate — during cleaning as well as in long transfers.

VERSATILE—New LECTRITE-NF is effective in hard or soft water, on brass, copper, copper alloys, zinc-base diecastings, and other special alloys. For single-tank reverse-current electrocleaning, or where two-stage direct and reverse cleaning is employed.

BALANCED for fast and complete wetting, free rinsing, controlled foam blanket which assures uniform, more efficient processing. Mail coupon today! *Wyandotte Chemicals, Wyandotte, Mich. Also Los Nietos, Calif.*

FORTIFIED for exceptionally high detergency, soil tolerance and long use-life which insures lower use-cost for you.

MAIL NOW FOR DATA AND DEMONSTRATION

Wyandotte Chemicals Corporation,
Dept. 2300
Wyandotte, Michigan

☐ Send more data on the use of new LECTRITE-NF.

☐ Have representative call.

Name_____

Firm_____

Address_____

City_____ State_____

Wyandotte CHEMICALS

Helpful service representatives in 138 cities in the United States and Canada

For more data circle **228** on Reader Service Card

square inch of radiating area. This power is said to produce cavitation effects throughout a large volume of solution, the useful irradiated volume depending on solution viscosity and temperature, as well as desired rate of production. The AM-203B transducer measures 4⅜ inches diameter by 4⅝ inches high.

Frequency matching and stability are said to be excellent. Proper water cooling eliminates drift in frequency and loss in output. Each transducer features built-in biassing magnets and eliminates the need for separate d.c. bias supplies and isolation networks. Maximum magnetostrictive stack motion is obtained through the use of a closed magnetic path core construction that minimizes leakage inductance.

The transducer stack is protected against the effects of the solution in contact by a Teflon "window" which is bonded to the stack by an epoxy-type cement. Nothing is brazed or soldered to the stack to reduce efficiency by short-circuiting laminations and thereby raising eddy current losses.

This 400-watt, 25.9-kilocycle transducer can be grouped externally on existing process equipment and driven in tandem by matching above-audible frequency generators ranging in power from 400 to 10,000 watts. It can be used with liquids at temperatures above the boiling point.

For more data circle **27** on Reader Service Card

★ ★ ★

Portable Oven

The Carl Mayer Corporation, 3030 Euclid Ave., Cleveland 15, Ohio, has announced a portable oven with a re-

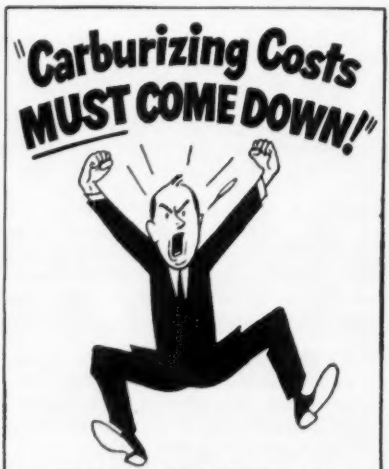
For Platers, Silversmiths, Jewelry Mfgrs., Makers of Watches, Clocks and Electronics and other metal finishers.

Supplied in straight or crimped brass, steel, nickel silver or stainless steel wire in sizes .0025 to .006 and in bristle, fibre or Nylon. Special sizes and shapes to order.

Write (Dep't. P) on your letterhead for catalog and price list

DIXON & RIPPEL, INC. Box 116 Saugerties, N. Y.
ESTABLISHED 1856

For more data circle **229** on Reader Service Card



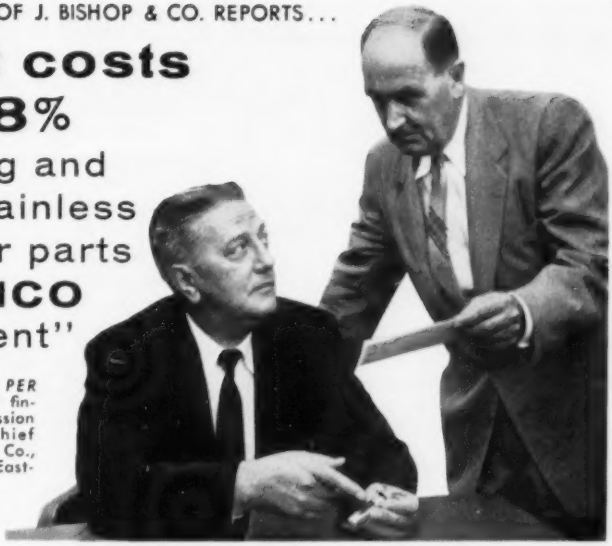
START SAVING TODAY by using Park Non-Burning Carburizers and cut your consumption of compound up to 50%. Low shrinkage losses with additions as low as 1 to 16. Write for bulletin.
PARK CHEMICAL COMPANY
8074 Military, Detroit 4, Michigan

For more data circle **230** on Reader Service Card

THE CHIEF ENGINEER OF J. BISHOP & CO. REPORTS...

"We cut costs 98.8%

by deburring and polishing stainless steel tubular parts with ALMCO equipment"



SAVINGS OF $6,917.50 PER YEAR by controlled barrel finishing is the topic of discussion between J. H. Gettig, Chief Engineer of J. Bishop and Co., and O. D. Ladley, Almco Eastern Branch Manager.

HALF A MILLION delicate parts for recording instruments and fountain pens are deburred and polished each year at J. Bishop & Co. of Malvern, Pa. Each must meet rigid requirements in uniformity of size, smoothness and high polish.

A costly process? Yes, when you consider the way Bishop used to finish them by machine reaming, hand scrapers, wire brushes and belt polishers.

Today this plant uses an Almco Model DB-200 finishing barrel, which gives three important advantages: (1) High volume, low cost deburring and finishing, (2) precise control during finishing process, (3) product improvement.

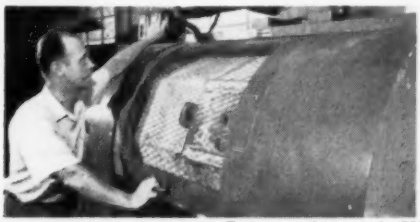
Here's how controlled barrel finishing worked out for J. Bishop & Co. They cut finishing costs by 98.8% . . . practically eliminated rejects . . . raised average output from 200 parts to 6000 parts per hour. Cost per unit for finishing has been cut from .014¢ to .00016¢. Annual savings total $6,917.50.

Almco's new, technician-staffed lab in Albert Lea, Minnesota can help you with your product parts too. We will examine your product parts, run them through tests, and come up with the answers you want. For example — where you can save finishing costs, how you can improve product quality and appearance, what method is best for your operation.

Why not send us your sample parts? Enclose specifications on the results you want. Or write us on your company letterhead asking an Almco engineer to call.

SEND FOR YOUR FREE HANDBOOK ON BARREL FINISHING

52 pages of facts and processes on barrel finishing. Shows typical installations, how to select the proper finishing barrel. Includes detailed cost chart on finishing of typical parts. Send for your copy.



Part of a half-million annual output, this batch of delicate instrument parts is being run in an Almco DB-200 barrel finishing machine.

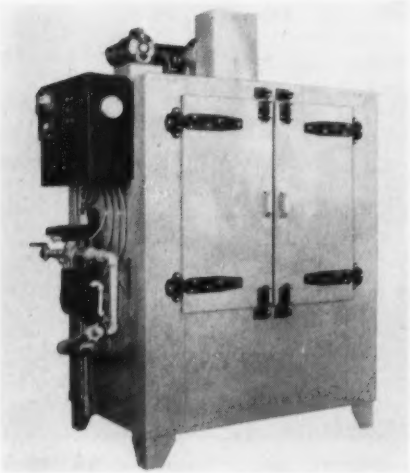
ALMCO

DIVISION OF QUEEN STOVE WORKS, INC.

118 Marshall Street • Albert Lea, Minnesota

Sales Engineering Offices in Chicago, Detroit, Los Angeles, Newark, New Haven, Philadelphia and London, England

For more data circle **231** on Reader Service Card



Portable Oven features recirculating heat

circulating heating system and automatic temperature controls.

Six models are in production. Temperature ranges are from 500 deg. F. to 1,000 deg. F. Oven sizes range from 20 by 20 by 20 inches to 26 by 38 by 50 inches.

Minneapolis-Honeywell combination safety controls are standard equipment on all models. These ovens are designed to use either gas or electricity.

For more data circle **28** on Reader Service Card

★ ★ ★

Scale Remover

Enthone, Inc., 442 Elm St., New Haven 11, Conn., has introduced Alka-Deox* 109, for the electrolytic removal of scale and oxides from iron and steel. The alkaline product is said to remove scale quickly, with no chemical attack on the iron or steel.

Alka-Deox* 109 is formulated for use

* Reg. Trade Name Enthone, Inc.

BARREL NICKEL BRIGHTENER

cuts brightening costs — concentrated to quadruple strength—shipping weight is cut 275%. You don't ship, store or handle water! No deposits, no carboy returns. A capful is enough for a barrel of nickel.

Platers Research CORPORATION

Nickelite boosts corrosion resistance of barrel nickel 30 to 100% by actual salt spray test.

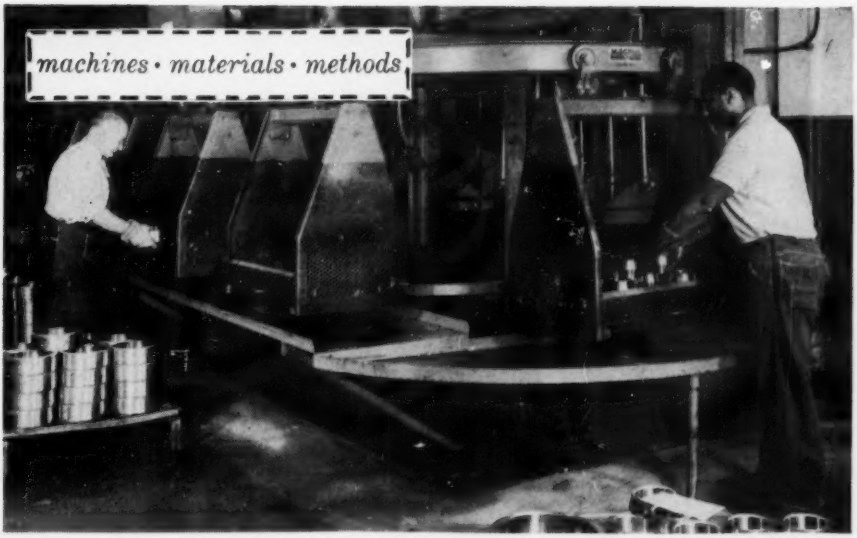
59 EAST 4TH ST.
NEW YORK 3, N. Y.

For more data circle **232** on Reader Service Card

For cleaning metal, wood and plastic surfaces before painting. Order today through your supplier.

DETRO SALES CO., INC., *Culver City, Calif.*
Standard of the Finishing Industry Since 1934

For more data circle **233** on Reader Service Card



THE *RIGHT* CLEANING MACHINE IN THE *RIGHT* SIZE AND THE *RIGHT* METHOD

Whatever your cleaning needs—from small machines for departmental cleaning up to multi-stage large units for centralized operation—Magnus has a complete size and style range of the *right* machine to choose from.

The Magnus Aja-Lif shown above is fully automatic; usable with any solution; capable of multiple-phase setup and equipped with automatic tray lift and positioning of work baskets. Vigorous agitation assures thorough cleaning. Drastic labor cost cuts can result.

Magnus will gladly conduct an expert survey at no cost or obligation to you. Write Magnus, 208 South Avenue, Garwood, N. J.

magnus

Equipment Division

MAGNUS CHEMICAL CO., INC.

For more data circle **234** on Reader Service Card

in cleaning prior to plating and in automatic equipment involving alkaline or alkali-cyanide plating solutions. In such installations, no acids are required, thus equipment corrosion from acid fumes is eliminated.

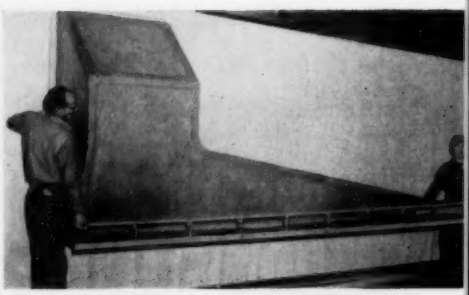
This product is also suitable for use in barrel plating lines.

For more data circle **29** on Reader Service Card

★ ★ ★

Plastic Fume Hood

A light-weight (178 pounds) plastic fume hood recently introduced by Haveg Industries, Inc., 914 Greenbank Rd., Wilmington 8, Del., can be lifted into place by two men.



Light-weight corrosion-resistant fume hood

Strong and rigid, the polyester reinforced glass hood is said to provide excellent corrosion resistance. The hood shown in the accompanying photograph is used to carry away acid fumes produced by electroplating.

For more data circle **30** on Reader Service Card

★ ★ ★

Small Diameter Polishing Wheel

Merit Products, Inc., 4023 Irving Place, Culver City, California, has announced a smaller-diameter Grind-O-Flex coated abrasive wheel, for contour grinding and polishing. Formerly, the abrasive wheel was made in 6-inch to 17-inch diameters, and 1 to 3-inch widths. This model of the Grind-O-Flex is only 3 inches in diameter and 2 inches in width. It is available in various grits from fine for polishing and

PAINT MIXER
MIRACLE PAINT REJUVENATOR
All paint restored to original consistency without opening the can.
2 minutes per gallon.
MIXERS AVAILABLE
¼ PT. to 55 GALS.
MIRACLE PAINT REJUVENATOR COMPANY
127 E. 9th St., St. Paul 1, Minn.
5 GAL. MODEL

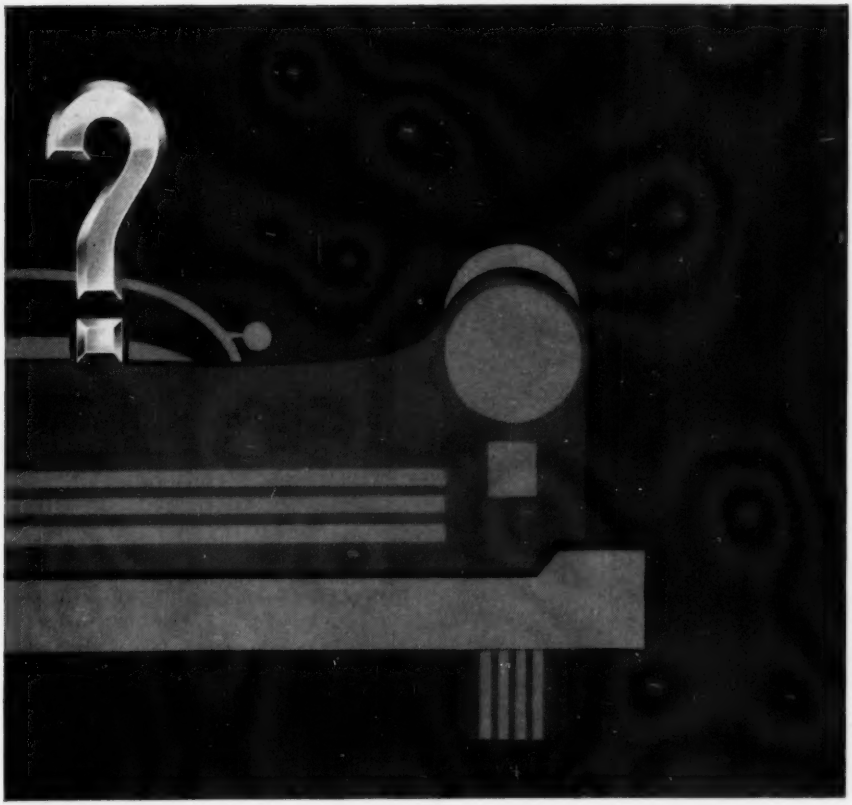
For more data circle **236** on Reader Service Card

Thompson Appliance White Baking Enamels bake to a hard, yet flexible finish in short times at moderate temperatures. They are applied by any standard method . . . cling tightly to bare metal or surface treatments — and they are really white. Write for literature containing complete technical data.

Production Paints Since 1847

THOMPSON and COMPANY
1010 ALLEGHENY AVE.
OAKMONT, PA.

For more data circle **235** on Reader Service Card



Grill Diamond's service department on chrome plating

Call in DIAMOND technical specialists when you run into a chrome-plating problem. These experienced men work only on customers' questions. They deliver complete, profit-making answers. Their service is free.

In making chromic acid, DIAMOND controls quality through every step. DIAMOND experience begins with importing the chrome ore and making the soda ash. It includes production and delivery . . . even standing by your side, if you wish, to help you consistently get top-quality plating results at low cost.

DIAMOND facilities—two chromic acid plants and nine warehouses and sales offices across the country—assure you uninterrupted service from a dependable source of supply. DIAMOND ALKALI COMPANY, 300 Union Commerce Building, Cleveland 14, Ohio.

DIAMOND CHEMICALS

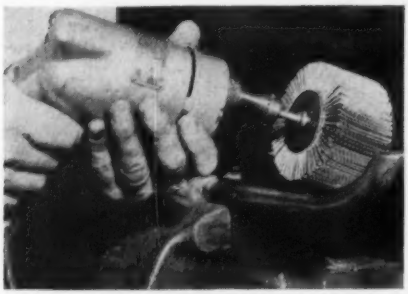
Diamond Chromic Acid

For more data circle **237** on Reader Service Card

buffing, to coarse grits for deburring, smoothing flash and chamfering.

The 3-inch diameter is for sharp bends, contours of small radii and confined areas such as the inside of tubing. Grind-O-Flex mounts on any spindle or chuck of present portable or stationary equipment.

For more data circle **31** on Reader Service Card



Small-diameter Grind-O-Flex Polishing Wheel

★ ★ ★

Liquid Plastic Finish

A liquid plastic finish that protects metal against corrosion has been announced by Surface Coating Engineers, Inc., 2417 N. Burdick St., Kalamazoo, Michigan.

Called Guardon, this finish incorporates a modified catalytic epoxy with other plastic resins, and may be spray or dip applied. It air dries in 6 hours and bakes in 8 minutes at 350 deg. F.

It forms a coating that is said to resist acids, solvents, and temperatures up to 800 deg. F. Guardon bonds to any surface, new or old, the manufacturer states.

This finish was developed especially as a coating for use in unusually corrosive conditions. A few of the items now being coated with Guardon on a production basis are oil filter cups, jet engine parts, fishing lures, boat bumpers, laboratory table tops, record player turn tables and tiny transistors for "wrist radios."

The coating has comparatively long pot life: at least 3 days at 72 deg. F., up to 3 weeks at lower temperatures.

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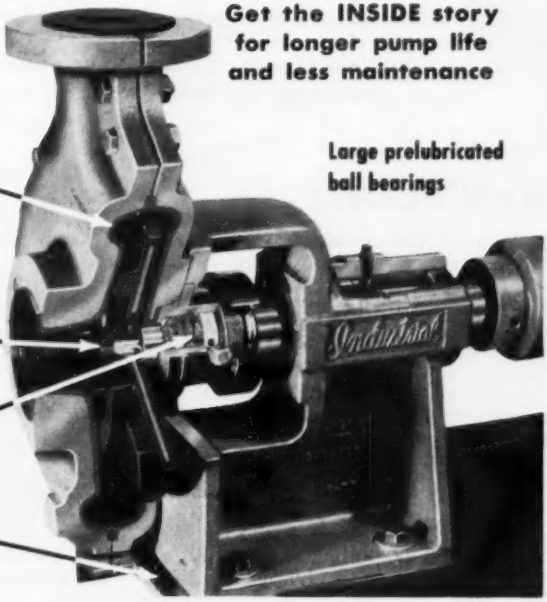

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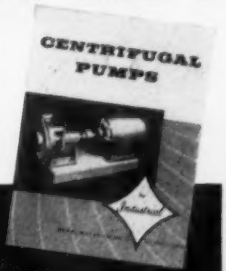

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News of the Industry

New plants . . . company news . . . new positions . . . meetings . . . societies

NEW PLANTS

Pennsalt Chemicals has announced that expansion now nearing completion will almost double the size of the company's plant at Chicago Heights, Ill., a unit of the Chemical Specialties Division. Constructed 18 months ago, the plant is a blending, packaging and warehousing facility for Pennsalt specialty products. The new wing, scheduled for completion in October, will be used for offices, a small control laboratory and additional warehouse space.

★ ★ ★

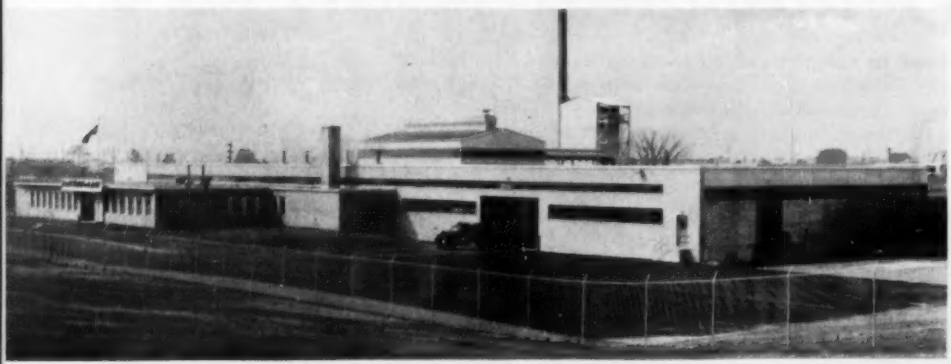
The Dow Chemical Company, expects to have a total payroll of 700 administrative, production and service employees when the company's Plequamine, Louisiana, plant starts operations in the spring of 1958, according to Dr. Leland I. Doan, company president.

When in full operation, the Louisiana Division will produce caustic soda; chlorine; glycols and oxides of ethylene and propylene; chlorinated solvents including carbon tetrachloride, ethylene dichloride, perchloroethylene and trichloroethylene; vinyl chloride; hydrochloric acid and other products.

★ ★ ★

To better serve the Canadian market, **Federated Metals of Canada, Ltd.**, has opened a non-ferrous metal fabrication, processing, and refining plant in Toronto.

Situated on an 18-acre tract in the



Federated Metals' newly built Toronto plant: non-ferrous metal processing and refining

Cadmium Fluoborate
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Copper Fluoborate
Tin Fluoborate
Nickel Fluoborate
Fluoboric Acid

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HOUSTON 11, 6622 Supply Row
LOS ANGELES 22, 3237 South Garfield Avenue
PHILADELPHIA 48, Jackson and Swanson Streets
PITTSBURGH 22, 505 Bessemer Building
6th Street & Fort Duquesne Blvd.

THE HARSHAW CHEMICAL CO.
1945 East 97th Street, Cleveland 6, Ohio
BRANCHES IN PRINCIPAL CITIES

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township of Scarborough, the new plant consists of a one-story building covering approximately 40,000 square feet of area.

★ ★ ★

Construction of a new engineering and pilot production building for the Tungsten and Chemical Division of **Sylvania Electric Products, Inc.,** has begun in Tonawanda, Pa.

Sylvania's Tungsten and Chemical Division is a major producer of germanium and silicon, key materials in the manufacture of transistors and other electronic devices. In the tungsten field, the division produces metal powder, rod, welding electrodes, and wire for light bulbs and electron tubes. The division also produces phosphors for fluorescent lamps and television picture tubes.

★ ★ ★

Construction on a new 2-million-dollar, two-story, Central Service Building has begun at **Norton Company's,** Worcester, Massachusetts, plant. The three and a half acre factory and office building will centralize under one roof the plant engineering department and a variety of crafts which service the entire plant. The building will be located on New Bond Street, adjacent to the present factory service building, which will be taken over by the Stores Department when it is vacated.

COMPANIES

The largest international sales conference in the history of the **Glidden Company's** Industrial Paint Division was conducted recently in the Hotel Carter, Cleveland.

More than 300 American and Canadian sales and technical representatives of the Industrial Division attended the conference together with industrial licensees from abroad.

Dwight P. Joyce, president of the Glidden Company and chairman of the board, addressed the group on the company's growth and opportunities.

The keynote address, on the expanding scope in use of industrial paints,

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"PROVEN VERY VALUABLE"

"The course has proven very valuable and I haven't been holding back in recommending it to different platers that come in to discuss mutual problems," writes plating chemist Peter Mancini of Erie, Pa. Chances are that you likewise will find this remarkable home study course in modern electroplating very valuable! Why not investigate? No obligation of course. Write **Joseph B. Kushner, Electroplating School, 115 Broad Street, Stroudsburg 9F, Pa.,** TODAY!

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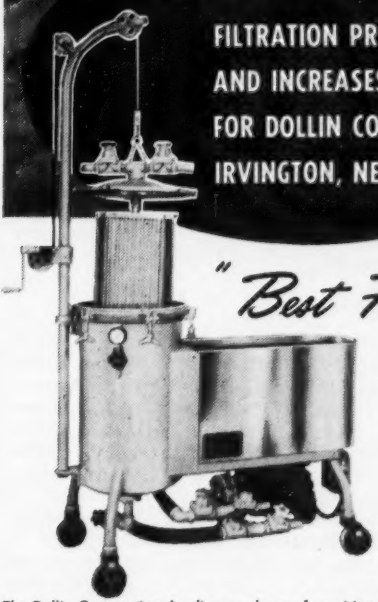
Sel-Rex SOLVES

FILTRATION PROBLEM AND INCREASES PRODUCTION FOR DOLLIN CORPORATION, IRVINGTON, NEW JERSEY



"*Best Filter on the Market...*"

says Eric Reinhold
Chief Plant Engineer.

"Our Sel-Rex Filter removes foreign matter from the hydraulic fluid in our new die-casting machines— ***without interrupting production.*** *Not only do we get maximum efficiency from our costly equipment, but the reclamation of used hydraulic fluid to "like new" condition has already paid for our Sel-Rex. For my money, it's the best filter on the market."*

The Dollin Corporation, leading producer of precision die-castings, had frequent interruptions in production for filtering and replacing hydraulic fluid (viscosity—200) in their high speed die-casting machine. Their Sel-Rex Filter has eliminated this profit-eating downtime by doing the job *while their machines are in operation.* In addition, their Sel-Rex transfers hydraulic fluid from the barrel to the machines and back—as required. Like getting two machines for the price of one.

Whatever your liquid clarification or solids recovery problem, Sel-Rex—the fastest cleaning filter on the market—will increase your production, because you'll spend more time filtering, less time cleaning. Super-efficient filtration is assured by permanent, stainless steel mesh filter elements, attached to the easily removed tank cover for quick cleaning. No costly filter cartridges to replace.—*Dollin saves $15 per machine filtered on this feature alone.*

See for yourself why Sel-Rex assures better, faster, cost-cutting filtration. Send for your FREE copy of GUIDE TO BETTER FILTRATION, right now.

Space saving portable, mobile and stationary models from 250 to 18,000 GPH. Larger capacity models built to specifications.

Sel-Rex Filter Division

BART-MESSING CORPORATION

229 MAIN STREET **Dept. PF-11** **BELLEVILLE 9, N. J.**

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was delivered by A. D. Duncan, Glidden vice president and general manager of the Paint and Varnish Division.

Executives from process and equipment industries formed a seminar on application methods. Participating were E. A. Zahn, General Electric Company; Dr. Emory P. Miller, Ransburg Electro-Coating Corporation, and Harold C. Fornwall, DeVilbiss Co. Topics were modern flow-coating, electrostatic spraying and catalytic spray.

Latest developments in industrial finishes were previewed. Presentations were made of Glidden's new catalyzed coatings—Glidpol, Glid-Iron, Glidkote and Nu-Pon Cote III. A leather-like novelty finish, Cordova-Cote, also was described.

★ ★ ★

Pangborn Corporation, Hagerstown, Md., manufacturer of Rotoblast airless blast cleaning and dry and wet dust control equipment, has announced an exclusive licensing agreement with Hepburn Conveyor Company, Ltd., of Wakefield, England, for sole manufacturing and sales rights of Pangborn equipment in the following countries: England, Scotland, Wales, Ireland, Australia, New Zealand and Union of South Africa.

★ ★ ★

Acquisition of all outstanding capital stock of the **Benjamin Foster Company,** Philadelphia, Pa., by the **American Chemical Paint Company,** Ambler, Pa., has been announced in a joint statement by Leon Cherksey, chairman of the board of ACP, and Benjamin Foster, president of Foster.

The Foster Company and its subsidiary, Benjamin Foster Company of Canada, will operate as wholly owned subsidiaries of the American Chemical Paint Company. No personnel changes are planned.

The Foster Company specializes in industrial coatings and adhesives for

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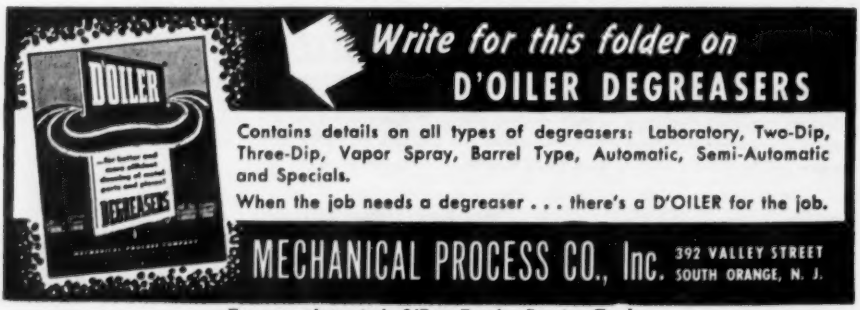
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- LOW COMPOUND CONSUMPTION
- FEWER SECTIONS NEEDED
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The buff you select is all important—it will mean longer buff life and greater production from a buff wheel.

Specify and buy the proven Schaffner Metal Center Air Cooled bias (type) Buff, and don't be satisfied with imitations. You'll find Schaffner buffs last longer, consume less compound and reduce rejections.

Write us. We'll run a test for you in your own plant and prove our claims.

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COMPOUNDS MADE IN BAR, SPRAY OR PASTE

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protection of thermal insulation and protective coatings for metal and concrete surfaces.

★ ★ ★

The Industrial Sales Division of **Lowe Brothers Co.,** Dayton, Ohio, held sales meetings in New York and Chicago during October. The one-day sessions dealt with sales methods and problems.

The meetings were held at the Hotel Taft, New York, on October 9, and Hotel Morrison, Chicago, on October 11.

★ ★ ★

Sulphur Products Co., Greensburg, Pa., has moved its main offices from 228 McKeon Way to the McKeon Building at 621 W. Pittsburgh St.

Additional warehouse space at the new location will permit the company to maintain more ample stocks of its products for metal finishing.

★ ★ ★

Nickel-Lume, a bright nickel plating process introduced in the last year to the export market is rapidly gaining favor in foreign countries, according to the manufacturer, **Hanson-Van Winkle-Munning Co.,** Matawan, N. J.

The process is being widely used in countries all over the world, including Italy, France, the Scandinavian countries, Mexico, Colombia and Hong Kong. H-VW-M attributes its international success to several advantages of the process, including 1) faster plating, 2) leveling qualities, which often eliminate subsequent buffing operations, 3) easily controlled solutions, 4) production of an active surface for better chromium coverage and 5) high ductility of the deposit.

The process is used in such diverse industries as a South American tubular furniture plant, a Colombian electrical appliance factory and a flashlight plant in Hong Kong. Nickel-Lume and other H-VW-M equipment, supplies and processes are handled abroad either by distributors or through direct sales.

Levelume, a companion process, has also found favor throughout the world. This process is used where extreme leveling and faster plating are needed.

To improve his knowledge of American plating processes, Joseph Cheung, a Chinese student, is studying electroplating and allied processes in Hanson-Van Winkle-Munning's Matawan laboratory. Mr. Cheung is taking a free

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Characteristics of the Nickel-Lume bright nickel plating process are pointed out by Myron B. Diggin, vice president of Hanson-Van Winkle-Munning Company to Joseph Cheung, a Chinese student studying electroplating in H-VW-M's Matawan, N. J., laboratories.

training program which H-VW-M offers as a part of its overall export sales program. Concerned primarily with the study of analysis and control of metal finishing processes, the program is offered as a service to users and distributors of H-VW-M products. Mr. Cheung is associated with the Cheung Loy firm of Hong Kong, which has represented H-VW-M in the Far East for over 30 years.

NEW POSITIONS

Election of **C. Robert Fay** as vice president in charge of **Pittsburgh Plate Glass Company's** paint and brush division has been announced by the company. **L. Stanton Williams,** formerly assistant cost controller, has been elected controller of Pittsburgh Plate Glass Company and Columbia-Southern Chemical Corporation, a wholly-owned subsidiary.

Pittsburgh Plate Glass Company's paint and brush division consists of 17 plants spread across the country. The division produces a complete line of home and industrial paints, special coatings and inks, plastics and brushes. As vice president, paint and brush division, Mr. Fay succeeds Elbert D. Peck, who died recently.

★ ★ ★

Robert C. Hoffman has joined **Paasche Airbrush Company, a Division of Cline Electric Manufacturing Company,** as a salesman. His territory will include southern Cook County, Ill., and Porter, Lake, and La Porte counties in Indiana.

Mr. Hoffman will handle all Paasche spray finishing lines, including art equipment, manual, automatic and portable air painting equipment, and mist coolant applicators.

★ ★ ★

Norton Company has created three new divisions in a recently announced reorganization.

Howard J. Daly

The three new divisions are the Abrasive Division, headed by **John Jeppson** as vice president and general manager; the Refractories Division with **William G. Fallon, Jr.,** as division general manager; and the Electro-Chemical Division, which will be headed by **Howard J. Daly** as

John Jeppson

William G. Fallon, Jr.

vice president and general manager.

Other divisions of the company, which are not affected by the change, are the Grinding Machine Division, Behr-Manning Division (located at Troy, N. Y.) and Norton Behr-Manning Overseas, Inc., which handles export sales and overseas plants.

As a result of this organization change, two other posts have been created.

Ralph M. Johnson, formerly vice president in charge of sales of abrasive and refractory products, has become vice president and director of sales.

Mr. Jeppson also becomes vice president and director of manufacturing.

The divisional responsibilities will be as follows: the Abrasive Division will produce and sell abrasives, both crude and finished; grinding wheels; and other bonded products for abrasive uses.

The Refractories Division will handle the production and sale of all products for refractory use as well as certain other products which will be assigned to it.

The Electro-Chemical Division will handle the production and sale of all products manufactured at electric furnace plants, with the exception of the sale of crude and finished abrasives.

Several other new appointments have been made by **Norton Company** following the creation of the three new divisions.

Duane E. Webster of Holden, has been appointed assistant to the director of manufacturing; **Frank G. Gifford** has been named works manager of the abrasive division; **David Reid, Jr.,** Holden, has been appointed factory manager; and **Harold E. White,** Holden, has been named assistant manager of crushing plants.

MEETINGS

A program designed to present the newest procedures and techniques in porcelain enameling has been developed for the **18th Annual Shop Practice Forum of the Porcelain Enamel Institute,** according to John C. Oliver, managing director of P.E.I.

This year's session will be held on November 7, 8 and 9 at the University of Illinois, Urbana, Illinois. Handling university arrangements will be Dr. A. L. Friedberg of the Department of Ceramic Engineering.

More than 40 industry authorities will participate in this year's presentation, according to the Forum's Program Committee chairman, E. E. Howe of the Chicago Vitreous Corporation. The conference is designed to provide full interchange of ideas to inform the practical enameler of the latest activities and developments.

Some of the topics of the 1956 Forum include, "The Market For Porcelain Enamel," "Low Temperature Porcelain Enamels," "Industry Test Methods" and the important new field of "Porcelain Enamel on Aluminum." In addition, the program calls for discussion of "Metal Preparation," "Milling," "Porcelain Enamel Applications," and "Firing." Winding up the conference on November 9 will be a general interest symposium.

Further details on the entire program and registration requirements are available from the Porcelain Enamel Institute, 1145 Nineteenth St., N. W., Washington 6, D. C.

★ ★ ★

The Milwaukee Branch, A.E.S., will inaugurate a program to establish both an **Inorganic Finishing Division** and an **Organic Finishing Division** of the Branch at a meeting on December 7. Meetings will be held at the Ambassador Hotel, Milwaukee, beginning at 8:00 p.m.

R. D. Wysong, of the Studebaker-Packard Corp., A.E.S. 3rd vice president, is working with Branch officers to organize the new division, and to extend the society's interest in organic finishing.

At the Inorganic Div. meeting, Joseph Day, Udylite Corp., will speak on "The Maintenance of Electrical Equipment in the Plating Room." At the initial meeting of the Organic Div., Ezra A. Blount, editor of PRODUCTS FINISHING, will speak on "A Survey of Paint Application Methods."

The Organic Div. is being organized by the following members of the Milwaukee Branch: C. Doria, Cutler-Hammer, Inc.; John Wagner, American Marietta Co.; Howard Wiley, Pittsburgh Plate Glass Co., and Ben Coughlin, Standard-Toch Chemicals, Inc.

SOCIETIES

Milton A. Glaser, vice president and technical director of Midland Industrial Finishes, Waukegan, Ill., has been installed as the 35th president of the **Federation of Paint and Varnish Production Clubs** during the business session of the Federation's 34th Annual Meeting in Cincinnati on October 24th. He assumes the presidency after having served the technical organization of the paint industry as president-elect for one year and as treasurer for two years.

Milton A. Glaser

★ ★ ★

The Baltimore-Washington Branch, A.E.S., has held its final **Convention Committee** meeting at the Statler Hotel in Washington.

Chairman Pierdon expressed his appreciation for the efforts of the committee chairmen and their members. All realized the convention was planned to give the guests the most for their money and the efforts of each was directed toward this aim. The administrative expenses were the lowest for any of the recent conventions.

Jules Horelick, chairman of the Finance Committee, reported that a small profit was realized where a deficit had been expected.

Ken Huston, co-chairman, called for a final report from each of the chairmen. He then presented the chairmen with an engraved album containing about 50 Kodachrome pictures of convention activities. It also contained black and white photographs supplied by "Plating," "Products Finishing" and "Metal Finishing." A hand lettered frontispiece was signed by each committee member.

★ ★ ★

P. Peter Kovatis, executive secretary of the **National Association of Metal Finishers,** kicked off the St. Louis N.A.M.F. local fall program with a talk on September 28.

Addressing shop owners at the Hotel York at an evening meeting, Mr. Kovatis said that in the near future platers will be able to obtain enough nickel to meet their demands but "not all the nickel they want." He pointed out that hearings and meetings are still being held by N.A.M.F. and congressional committees to determine reasons for the "nickel shortage" in some areas of the metal finishing industry.

"The small business man in the plating industry will get even smaller," warned Mr. Kovatis, "unless there is concerted action by more members of the industry to gain the recognition

Principals in the September 28 meeting of the St. Louis Platers' Association, N.A.M.F., at the Hotel York: (left to right), Henry L. Fros, vice president; Edward J. Musick, president; N.A.M.F. executive secretary Peter Kovatis; national director Henry J. Siegel; and Harvey L. Lubker, secretary-treasurer. (Photo courtesy National Association of Metal Finishers).

they deserve as an important and vital segment of our economy."

Sponsored by the **St. Louis Platers' Association, N.A.M.F.,** the first fall meeting was arranged by national N. A.M.F. director Henry J. Siegel, Siegel-Robert Plating Company and the local president, Edward J. Musick, Musick Plating, Inc.

★ ★ ★

The **Indianapolis Branch, A.E.S.,** held its October meeting in Columbus, Indiana, with 60 members and guests attending. A social program, with a minimum of business, was arranged by Tom Evans of Plating Service, Inc.

The chief subject of business centered about the **Tri-State Regional Meeting** to be held March 30 at the French Lick-Sheraton Hotel, French Lick, Indiana. **F. G. Anderson,** chairman of the Host Branch Committee, announced some of the social events planned for the meeting. The ladies will have a luncheon and style show while the men's educational meetings are in session. Preceding the banquet and floor show, a suppliers' cocktail party is planned.

An invitation has been extended to the A. E. S. Executive Board to hold a meeting in French Lick at this time.

NECROLOGY

Nathan Ransohoff, founder and chairman of the board of **Ransohoff, Inc.,** died September 24 at Cincinnati, Ohio. He had been active in business, civic and philanthropic affairs until a few weeks before his death.

Nathan Ransohoff

Mr. Ransohoff had been characterized as "an outstanding mechanical engineer" and "father of many modern metal surface treatment methods." He was a 1910 graduate of the Massachusetts Institute of Technology and a member of the American Society of Mechanical Engineers and the Engineering Society of Cincinnati.

He founded Ransohoff, Inc., in Cincinnati in 1916 and guided its development into one of the nation's leading manufacturers of metal cleaning and finishing machinery. In 1953, the firm was moved to Hamilton, Ohio.

Mr. Ransohoff was widely known in

October meeting of Indianapolis Branch of the A.E.S., was held in Columbus, Indiana.

the metalworking industry. He was a familiar figure at conventions and technical society meetings and a frequent contributor to trade and technical journals.

In announcing Mr. Ransohoff's death, John R. Strauss, president, and Richard C. Wigger, vice-president of the Hamilton firm, expressed the company's keenly-felt loss, since Mr. Ransohoff had been an important factor in company progress for more than 40 years.

★ ★ ★

Ralph W. Craig, 63, leader of Technical Service — Paint and Ink Industries for **Diamond Alkali Company,** died September 29, at Lake County Memorial Hospital, Painesville, Ohio, following a short illness.

A recognized specialist in his field, Mr. Craig delivered many lectures on paint and paint problems. He spent considerable time with technical groups in the paint industry.

★ ★ ★

Elbert D. Peck, vice president in charge of **Pittsburgh Plate Glass Company's** paint and brush division died Saturday, Sept. 15, at West Penn Hospital in Pittsburgh, Pa.

Mr. Peck, age 67, was widely known throughout the paint industry. At the time of his death, he also served as president and chairman of the board of Barreled Sunlight Paint Company, director and chairman of the board of Koppers-Pittsburgh Company and as a director of Canadian Pittsburgh Industries Limited.

Associated with the paint industry since 1907, Mr. Peck joined Pittsburgh Plate Glass Company during 1939 as general paint manager. He had served as vice president in charge of the paint and brush division during the past four years. Earlier he had been associated with Devoe and Raynolds Company as vice president of trade sales.

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MEETINGS of INTEREST to FINISHERS

Nov. 7-9. 18th Annual Shop Practice Forum, Porcelain Enamel Institute, Inc., Urbana-Lincoln Hotel and University of Illinois, Urbana, Ill.

Nov. 15-16. North Central Regional Meeting, National Association of Corrosion Engineers, Statler Hotel, Detroit, Mich.

Nov. 30. Annual Meeting, Detroit Branch, A.E.S., Sheraton-Cadillac Hotel, Detroit, Mich.

Dec. 1. Annual Banquet, Detroit Branch, A.E.S., Sheraton-Cadillac Hotel, Detroit, Mich.

March 30. Fourth Annual Tri-State Regional Meeting, A.E.S., French Lick-Sheraton Hotel, French Lick, Ind.

June 16-20. 44th Annual Convention, A.E.S., Sheraton-Mount Royal Hotel, Montreal, Canada.

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PRODUCT LITERATURE

82. Scratch Thickness Gage
Description of an instrument for measuring the thickness of coatings. Gardner Laboratory, Inc., Bethesda 14, Md.

83. Solution Filters
Booklet describes and illustrates basic models and optional equipment used in filtering solutions. Industrial Filter & Pump Mfg. Co., 5904 Ogden Ave., Chicago 50, Ill.

84. Descaling Process
Bulletin describes various adaptations of the Kolene system of descaling stainless, alloys and titanium after heat treating. Kolene Corporation, 12890 Westwood Ave., Detroit 23, Mich.

85. Automatic Spray Painting Machine
Form No. 605 describes automatic reciprocating-type spray painting machine. This machine can be built to accommodate many different parts, from small toys to long stampings used in the automotive industry. Conforming Matrix Corp., 356 Toledo Factories Bldg., Toledo 2, Ohio.

86. Pickling Powder
Technical Data Sheet No. 43 describes a dry powder that may be used to replace liquid muriatic and sulfuric acid. Named Metex Acid Salt M-629, this dry acid replacement salt is used in solution for acid dipping and pickling ferrous and non-ferrous base metals. Mac Dermid Incorporated, Waterbury, Connecticut.

87. The Proper Cleaning Method
Bulletin 10,000-G is entitled "How to Select the Proper Machine, Method and Material." It presents over 100 types of equipment and cleaning techniques. Industrial Div., Magnus Chemical Co., Inc., 208 South Ave., Garwood, N. J.

88. Rotary Finisher and Buffer
Catalog sheet gives full details on a rotary finisher and buffer with disc attachment, built for abrasive finishing, burring, sanding, buffing and polishing. Mathewson Machine Works, Inc., 80 Hancock St., Quincy 71, Mass.

89. Barrel Finishing Abrasives
"Barrel-Finishing with Norton Tumblex Abrasives," a 76-page booklet, includes information on types of barrels, selection of abrasive, cleaners, time cycles, and other important facts about barrel-finishing. Includes before and after photographs and case histories of actual examples of deburring, finishing for plating, and precision forming of radii to blueprint specifications. Write for Form 501. Norton Co., Worcester 6, Mass.

90. How to Apply Zinc Phosphate Coatings
Booklet tells how to prepare steel for painting with zinc phosphate coatings. Oakite Products, Inc., 20 Rector St., New York 6, N. Y.

91. Tank Catalog
A 16-page catalog describing ASME Pressure Feed Tanks. Paasche Pressure Feed Tanks are designed for use in all types of automatic, stationary or portable paint spray systems. Paasche Airbrush Company, 1909 W. Diversey Parkway, Chicago 14, Ill.

92. Pre-Coated Metals
Brochure describes variety of pre-finished metals that are ready to be formed or fabricated in the user's plant. Roll Coater, Inc., P. O. Box 67, Pendleton, Ind.

93. Barrel Finishing Catalog
Catalog describes many types of barrel finishing equipment. Speed-D-Burr Corp., 3613-A San Fernando Road, Glendale, California.

94. Oxidized Finishes
Data folder gives details on "Liquid Sulphur," an oxidizing agent used to produce oxidized finishes on copper, silver and brass. Sulphur Products Co., Inc., McKeon Bldg., 621 W. Pittsburgh St., Greensburg 6, Pa.

95. Heat-Resistant Finishes
Description of Stanley Silicone Finishes, formulated to withstand high heat. Stanley Chemical Co., 31 Berlin St., East Berlin, Conn.

96. Enamel Stripper
The Lea Mfg. Co., Waterbury 20, Conn., has available a bulletin on Synstrip No. 400, a liquid developed especially for stripping synthetic resin-base baked enamels. Complete description and directions for use are presented.

97. HydroAirless Spray Painting
Data sheet explains operation of the Spee-Flo HydroAirless spray painting equipment. This system is based on the mechanical atomization of paint by elevated pressures. Viscosity is reduced by incorporating hot spray equipment. Spee-Flo Co., Dept. PF-22, 720 Polk, Houston, Texas.

98. Precleaning Process
Technical bulletin describes a precleaning process for use on buffed metals prior to plating. Process is said to be more effective in removal of buffing compound and to protect metals better during production delays following cleaning. Includes description of control operations for the process as well as operational details. Wyandotte Chemicals Corp., J. B. Ford Div., Wyandotte, Mich.

99. Pre-Cut Masks
Bulletin 160-C tells how Brady Pre-Cut Masks can speed finishing operations. W. H. Brady Co., 746 W. Glendale Ave., Milwaukee 12, Wis.

100. Precision Tumbling Materials
Catalog has complete information on processed limestone chips, processed red granite chips, and aluminum oxide chips. Also information on compounds and other tumbling equipment. Universal Tumbling Supply Co., 14337 Mansfield, Detroit 27, Mich.

101. Compressed Air Filters
Booklet gives basic information on the reasons for using compressed air filters and on compressed air problems and how to solve them. Includes data and specifications on Vi-Speed compressed air filters. Van Products Co., Erie 7, Pa.

102. Infrared Heaters
Data sheet illustrates and describes four types of electric infrared heaters. Includes data on lamp replacements, radiant panels and adjustable-area radiant heaters. Edwin L. Wiegand Co., 7522 Thomas Blvd., Pittsburgh 8, Pa.

103. Conveyorized Ultrasonic Cleaning
Complete details on the Ransohoff automatic indexing conveyorized cleaning machine with ultrasonic treatment chamber. Ransohoff, Inc., 610 N. Fifth St., Hamilton, Ohio.

104. Paint Arrestors
Booklet gives information and suggestions on solving paint spray booth problems with RP Paint Arrestors. Research Products Corp., Dept. 38, Madison 10, Wisconsin.

105. Chromate Conversion Coatings
Technical Data File on Iridite chromate conversion coatings. Gives complete information on these protective chemical conversion finishes. Allied Research Products, Inc., 4004-06 E. Monument St., Baltimore 5, Md.

106. Paint Stripping Service
Details of company's facilities for stripping paint on a job basis. Redi-Strip Co., 10811 S. Garfield Ave., South Gate, Calif.

107. Ultrasonic Equipment
Folder describes and illustrates Bendix ultrasonic cleaning system. The complete unit consists of a recirculating filter, transducer cabinet or cleaner, a dryer and a generator. Includes data on Bendix 25-1 detergent, especially formulated for use in ultrasonic cleaning systems. Pioneer-Central Div., Bendix Aviation Corp., Davenport, Iowa.

108. Use of Filters
Reprint of article entitled "The Use of Filters in Electroplating." Alsop Engineering Corp., 1109 Keen St., Milldale, Connecticut.

109. Brass Additive
Literature discusses Jelco Brass Additive, formulated to produce an improved brass plate. Jelco Finishing Equipment Corp., 153 E. 26th St., New York 10, N. Y.

110. Improved Electroplating
Booklet gives valuable hints on improvement of deposits and tells of the part that OFHC Copper Anodes can play in better electroplated finishes. The American Metal Co., Ltd., 61 Broadway, New York 6, N. Y.

111. Chromium Plating Additive
Informative fact-file folder concisely reviews a recently developed chromium plating additive "CPA 1800," formulated for both decorative and hard chrome applications. Diamond Alkali Co., Chromium Chemicals Div., 300 Union Commerce Bldg., Cleveland 14, Ohio.

112. Longer Wearing Buffing Fixtures
Description of facilities for coating buffing fixtures with tungsten carbide to give better abrasion resistance, make them last longer. Fusion Metal Coating Co., 25493 W. 8 Mile Rd., Detroit 19, Mich.

113. Nickelite
Advantages of using Nickelite in barrel bright nickel plating. Make-up formulae are included. Platers Research Corp., 59 E. 4th St., New York 3, N. Y.

114. Automatic Plating Machines
Information on a complete line of rack-type and barrel-type automatic plating and processing machines. Frederic B. Stevens, Inc., Detroit 16, Mich.

115. Plating Stop-off
Descriptive literature on Miccrostop, a material used for masking of machined parts in all plating operations, to produce hairline demarcation. Michigan Chrome and Chemical Co., 8615 Grinnell Ave., Detroit 13, Mich.

116. Degreasers
Folder contains information on a wide variety of degreasers: laboratory, two-dip, three-dip, vapor spray, barrel type, automatic, semi-automatic, and specials. Mechanical Process Co., Inc., 392 Valley St., South Orange, N. J.

117. Tumbling Barrels
Catalog describes and illustrates the company's latest models of tumbling barrels. The Henderson Bros. Co., 134 S. Leonard St., Waterbury, Conn.

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118. Electrocleaner
Information on Pennsalt Cleaner K-8, formulated for use as an electrocleaner. Use of this material is said to remove heat-treat soils, mill oils and drawing compounds. Metal Processing Dept. 235, Pennsylvania Salt Mfg. Co., Three Penn Center Plaza, Philadelphia 2, Pa.

119. Tack Cloth
Specially impregnated cloths designed to remove all dust and loose dirt from metal surfaces prior to paint fiuishing. Detro Sales Co., Inc., Culver City, Calif.

120. Precision Barrel Finishing
Catalog tells how to barrel finish parts where close tolerances must be held. Roto-Finish Co., 3704 Milham Rd., Kalamazoo, Mich.

121. Chemical Resistant Coatings
Bulletin Chem C-2 describes three general classes of chemical-resistant organic coatings; 1) Ucilon coating systems applied like paint for general corrosion control; 2) Unichrome plastisol compounds for heavy-duty service, and 3) Unichrome special materials for lining steel drums and tanks. The bulletin points out the advantages of both phenolic Unichrome tank linings and plastisol Unichrome linings. It also describes vinyl, phenolic, epoxy and plastisol drum linings. Metal & Thermit Corp., Rahway, N. J.

122. Pearl-Like Finish
Nacromer, when applied in a clear vehicle over standard finishes, produces an iridescent, pearl-like finish. Mearl Corp., 151 Waverly Place, New York 14, N. Y.

123. Mechanical Container Shaker
Data sheet shows several models of machines designed to mix paint thoroughly without opening the container. Miracle Paint Rejuvenator Co., 127 E. 9th St., St. Paul 1, Minn.

124. Phosphate Compound
Folder describes operating advantages and economies of Irco 66 Compound. International Rustproof Corp., 1575 Merwin Ave., Cleveland 13, Ohio.

125. Self-Powered Cooling Controls
Bulletin 710B describes Sarco self-powered Cooling Controls for compressors, stills, solvent coolers, degreasers, oil coolers, small engines and condensers. Sarco Company, Inc., Dept. P, Empire State Bldg., New York 1, N. Y.

126. Brass Bright Dips
Data sheet describes equipment, procedures and materials for removal of oxides and stains from copper, brass, bronze, beryllium copper and other copper alloys. The Swift Industrial Chemical Co., Canton, Conn.

127. Tumbling Machine
Information on specific advantages of the Baird Model H Tumbling Machine. The Baird Machine Co., Dept. PF, Stratford, Conn.

128. Rhodium Plating Handbook
Detailed data, technical information and applications for rhodium plating. Baker & Co., Inc., 113 Astor St., Newark 5, N. J.

129. Bright Nickel
Outstanding features of Perglow bright nickel are detailed in literature which includes information on specific properties of this deposit, such as brightness, leveling, ductility, ease of operation, tolerance to impurities and ease of chromium plating over this nickel. Harshaw Chemical Co., 1945 E. 97th St., Cleveland 6, Ohio.

130. Black Oxide Coating
Lustre Black Oxide Coating for iron and steel, applied from a single bath, produces corrosion resistant, attractive black finish. Standard Research, Inc., 464 Grand Ave., New Haven 13, Conn.

131. Precious Metal Solution Agitator
Data sheet pictures the Technic Turbomatic Agitator, gives specifications. Specifically designed for effectively agitating all precious metal electroplating solutions, the Turbomatic Agitator eliminates need for stirrers, rod agitators and external pumps. It is reported to afford vigorous but smooth agitation. Technic, Inc., 39 Snow St., Providence, Rhode Island.

132. Chemical Polishing Aluminum
Folder describes method of obtaining satin to mirror bright finishes and removing burrs from aluminum parts. Alchemize Corp., 1420 S. Talman Ave., Chicago, Ill.

133. Sanding Guide
Pocket guide gives valuable information on proper sanders and pads for various applications. Sundstrand Machine Tool Co., Pneumatic Div., Rockford, Ill.

134. Porcelain Enamel Pretreatment
Information on Parker Pre-Namel 420, a pretreatment for surfaces to be porcelain enameled. Parker Rust Proof Co., 2172 E. Milwaukee, Detroit 11, Mich.

135. Automatic Polishing Machinery
Catalog describes and illustrates variety of automatic polishing and buffing machinery. Acme Manufacturing Co., 1400 E. 9 Mile Rd., Detroit 20 (Ferndale), Mich.

136. Spray Painting Equipment
Catalog describes and illustrates the Versatal line of spray painting equipment. Includes paint transfer pumps, hoses, spray guns, a pressure control called the "Flo-Trol," which prevents initial material surge when gun is opened. Alemite Div., Stewart Warner Corp., 1826 Diversey Parkway, Chicago 14, Ill.

137. Spray Booth Coatings
Details on "Liquid Envelope" strippable spray booth coatings for easily removing overspray from spray booth walls. Better Finishes & Coatings, Inc., 268 Doremus Ave., Newark 5, N. J.

138. Tack Cloth
Details on various meshes of tack cloth for cleaning every type of surface prior to paint finishing. Bond Chemical Products Co., 2639 N. Clybourn Ave., Chicago 14, Illinois.

139. Drum Truck
Bulletin No. 1153 describes Morse Deluxe 500 Portable Rotator Drum Truck. Safely rotating at fixed speeds drums weighing up to 500 pounds, the Morse Drum Truck can be used to revolve a one or 55 gallon container. Morse Manufacturing Co., Inc., 762 West Manlius St., East Syracuse, N. Y.

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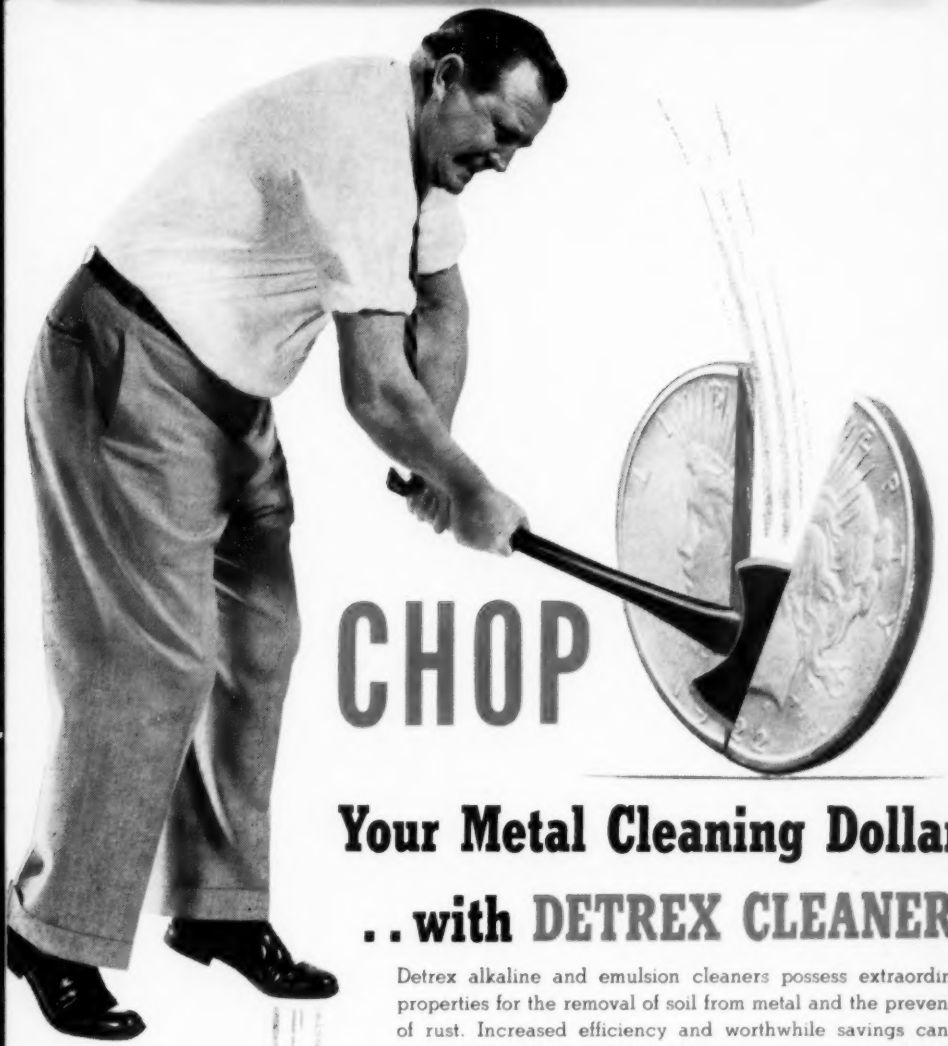

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